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Compounding Latex

Joseph Rossman, Ph.D.

THE following continues the information on United States patents relating to the compounding of latex, from our August 1, 1932, issue.

62. Cadwell, 1,680,856, Aug. 14, 1928. Latex is treated so that the rubber may be rapidly deposited on a porous body. 100 parts by weight of rubber in the form of ammonia preserved 33% latex, which may or may not have been twice creamed by treatment with pectin bodies, are mixed with 3 parts by weight of zinc oxide, 3 parts by weight of fused sodium acetate, and 1 part by weight of glue. The mixture is then heated for 48 hours at 150° F. If unglazed porcelain is dipped into the latex for 5 minutes, a layer of rubber about 0.025-inch thick will form on the porcelain.

The pectin-treated latex is prepared as follows: A pectin body is dissolved in water and added to ordinary ammonia preserved latex so that the latex will contain approximately 1% of the pectin body. The treated latex is then allowed to stand; whereupon the rubber rises to the top in an uncoagulated layer. The aqueous portion beneath the rubber layer is removed and the layer shaken up in additional water, and the treatment with the pectin body repeated several times if desired.

The zinc oxide is added as follows: 1 part by weight of glue is dissolved in 1¼ parts by weight of water. Into this solution are stirred 3 parts by weight of zinc oxide; a mortar is used to aid in making the mixture into a thick mush, which is then ground to a smooth paste in water, using a mortar for a small quantity of the material or a paint mixer for larger quantities. The proper amount of the thin paste of zinc oxide is added to the latex, and thereafter is added an aqueous solution of the sodium acetate.

63. Cadwell, 1,680,857, Aug. 14, 1928. The invention consists in freeing rubber latex from ammonia, mixing therewith oxy normal butyl thiocarbonic acid disulphide, dibenzylamine, zinc oxide, and sulphur in the form of emulsions, and allowing the latex to become vulcanized at ordinary temperatures.

100 parts of rubber in the form of latex containing 35% of rubber, which latex has been twice creamed with pectin, is mixed with ½-part by weight of oxy normal butyl thiocarbonic acid disulphide in the form of an aqueous dispersion of its solution in solvent naphtha and ¼-part by weight of dibenzylamine in the form of an aqueous dispersion of its solvent naphtha solution, 2 parts by weight of zinc oxide, and 2 parts by weight of precipitated sulphur. The aqueous dispersions of oxy normal butyl thiocarbonic acid disulphide and of dibenzylamine are slowly stirred into the latex; thereafter a thin cream of zinc oxide and sulphur is added. After standing for about 2 weeks at ordinary temperatures, 70° F., the latex has become vulcanized.

The aqueous dispersion of the solvent naphtha solution of oxy normal butyl thiocarbonic acid disulphide is prepared as follows: 30 parts by weight of glue are dissolved in 90 parts by weight of water on a steam bath, and after solution has been accomplished ½-part by weight of sodium oleate is stirred into the glue solution by a high speed stirrer. To this solution is added a solution of 30 gr. of oxy normal butyl thiocarbonic acid disulphide in 60 gr. of solvent naphtha, meanwhile stirring with a high speed stirrer until the emulsion has become stable. The dibenzylamine emulsion may be made similarly.

The cream of zinc oxide and precipitated sulphur is made by dissolving 1 part of glue in 1¼ parts of water and adding this solution to a thick mush of 2 parts of sulphur in water. The mixture may then be run through a paint mill or ground to a smooth thin paste in a mortar.

If a porous form be dipped into this vulcanized latex and subsequently dried, it will be found that the layer of rubber clinging to the form is approximately twice as thick as that which would be obtained from a similar unvulcanized latex in the same length of time. Latex vulcanized according to the above example does not penetrate fabrics so rapidly as unvulcanized ammonia preserved latex. Films of rubber deposited from this vulcanized latex age quite well at 212° F.; and the rubber may be soaked in water without impairing its tensile strength. If desired, 100 parts of a compound-

ing ingredient, such as whiting, etc., or softening agent, or age retarder, may be added along with the curing ingredients or after vulcanization.

As another example; ½-part of aniline may be substituted for the dibenzylamine in the above example, and the oxy normal butyl thiocarbonic acid disulphide may be increased to 1 part. The other ingredients are the same.

64. Cadwell, 1,680,858, Aug. 14, 1928. Rubber films are rapidly deposited on unglazed porcelain, using the following mixture: 100 parts by weight of rubber in the form of ammonia preserved latex containing approximately 20% of rubber, 2 parts by weight of zinc oxide, 3 parts by weight of sulphur, 1 part by weight of sodium dithiobenzoate (in aqueous solution). This mixture is prepared by adding a thin cream of the zinc oxide and sulphur to the latex and then adding the aqueous solution of the dithiobenzoate to the latex.

65. Webster, 1,681,891, Aug. 21, 1928. Abrasive articles are molded from the following composition: 18.3% by weight of rubber latex, 3.5% by weight of sulphur, 69.0% by weight of abrasive, and 9.1% by weight of a 2½% solution of rubber in solvent naphtha.

66. Loomis, 1,682,530, Aug. 28, 1928. Rubber flooring composition is prepared as follows: (1) 150 parts of dry amphibole asbestos are mixed with 100 parts of water. After 100 parts of latex containing 40% of rubber are added, the whole is thoroughly mixed. It should be stored in containers to prevent evaporation of the water until ready for use. It is then spread onto the floor by a trowel in a smooth continuous sheet and allowed to dry. After drying, it can be further finished, if desired, by rolling. (2) 150 parts of acid washed asbestos are spread over the floor by raking out dry asbestos and then rolling it or by spreading out a mixture of water and asbestos and allowing it to dry. In either case the resulting layer or sheet of asbestos is sprinkled uniformly with 100 parts of latex (containing 40% of rubber) and allowed to dry. If desired, it can be further finished by rolling. (3) 150 parts of asbestos are spread the same as above and then sprinkled with 150 parts of an artificial emulsion of crude rubber in water, (containing 30% of rubber) to which has been added 5% of colloidal sulphur (on a dry rubber base) and 3% of a strong catalyst or organic accelerator such as tetramethylthiouram disulphide, diphenylguanidine, or paranitrosodimethylaniline finely dispersed in the emulsion. It is then allowed to dry, and in the presence of the colloidal sulphur and catalyst a slow cold cure takes place. (4) A mixture of asbestos and latex, such as specified in Example 1, is spread out upon a sheet of burlap or other fabric and allowed to dry. The resulting sheet can then be wrapped into rolls and handled and laid like linoleum, but the rubber sheet thus obtained is far more pliable and more durable than linoleum.

67. Schidrowitz, 1,682,857, Sept. 4, 1928. Uncoagulated vulcanized rubber latex is prepared as follows: To 200 cc. of latex, containing 30% of rubber, admixed with a solution of sodium polysulphide, assaying about 25% of precipitable sulphur, in the proportion of 1 part of the sulphide solution to 12 parts of the latex, were added, in the form of a thin cream made with about 20 cc. of water, 10 gr. of an accelerator prepared according to the specification of U. S. Patent No. 1,418,976. This accelerator consists of zinc oxide carrying about 6% of piperidyldithiocarbamate of piperidine. The mixing was allowed to stand at the ordinary temperature, about 15° C., during 3 days, at the end of which time the whole had coalesced to a thickened mass, the solids of which consisted of a vulcanized rubber composition. Other examples are also given.

68. Klein and Healey, 1,683,588, Sept. 4, 1928. The process comprises regulating the degree of coagulation by adding soft soap to natural latex in the proportion of 6 to 12 gr. of soft soap to 1 liter of latex and depositing the latex by electrophoresis upon an anodic mold.

69. Webster, 1,687,410, Oct. 9, 1928. A method of making an abrasive article comprises the abrasive mixing of grains with rubber latex, a vulcanizing agent, coagulating the latex to form a rubber coating on the individual grains, and thereafter shaping an abrasive article from the coated grains, and vulcanizing.

70. Biddle, 1,689,008, Oct. 23, 1928. The folowing formulas are given. For a sanitary paint: 10 parts by weight of calcium rosolate and/or calcium hydroxide, 10 parts by weight of water, and 2 parts by weight of rubber latex.

A spray for plant life: 10 parts by weight of calcium arsenate, 2,400 parts by weight of water, and 16 parts by weight of rubber latex.

A spraying composition having great adhesive properties: 20 parts by weight of calcium arsenate, 3 parts by weight of casein, ¾-part by weight of borax, 4,000 parts by weight of water, and 10 parts by weight of rubber latex. In compounding this composition the insecticidal material is mixed with the hydrophillic colloid casein and borax in a pasty form. To that may be added rubber latex and thoroughly commingled therewith, after which action this mixture may be diluted with water to the desired extent.

An antifouling composition: 10 parts by weight of pulverized metallic copper, 10 parts by weight of boiled linseed oil, 5 parts by weight of bentonite or other colloidal clay, and 30 parts by weight of rubber latex. The manner of mixing these ingredients is to mix thoroughly the copper with the linseed oil, then add to this mixture the clay which has been previously mixed with a sufficient amount of water to make a plastic or liquid composition, and finally add the latex to the other ingredients so mixed.

Other antifouling materials than pulverized metallic copper may be substituted therefor in the above composition. Such substitutes may include copper compounds, or zinc, lead or compounds of mercury, cyanides, red lead, alcohol, poisons, and radio-active substances.

71. Wescott, 1,689,570, Oct. 30, 1928. Reenforced hard rubber articles are made from pulverized hard rubber waste to which is added disintegrated rubber-frictioned cotton fabric and latex. This mixture is molded and cured.

72. Day, 1,689,581, Oct. 30, 1928. Latex, stabilized with blood proteids, can be compounded with ordinary fillers.

73. Wescott, 1,690,150, Nov. 6, 1928. The process comprises adding hemoglobin and zinc oxide to latex, thickening the mixture by the action of these ingredients, and thereafter incorporating other materials intended to form the body of the final article. Sulphur to the amount desired in vulcanization may be incorporated at the time of mixing, as well as accelerators. In the presence of hemoglobin, sulphur disperses readily and uniformly throughout the latex. Drying is best done at a temperature not above 150° F. by a current of conditioned air.

74. Biddle, 1,691,460, Nov. 13, 1928. A sealing compound is made as follows: Take 80 parts by weight of gum chicle and dissolve it in 60 parts of linseed oil with the aid of heat. Also take 25 parts by weight of casein and dissolve in a solution of 150 parts of water and 7 parts of a casein solvent, for example, 2 parts of borax and 5 parts of aqua ammonia. Solution of the casein may be assisted by heat. The oil solution of chicle is then slowly added to the casein solution under agitation. Care should be observed that the dispersion of the gum chicle in the aqueous colloid is complete, for otherwise an inversion of phase may take place and form a stringy or tacky mass. The composition at this stage should now be more or less viscous or plastic. 100 parts by weight of rubber as latex are now added to the composition, which is then subjected to a vigorous stirring so that the parts may become thoroughly com-

mingled and the rubber and gum chicle uniformly dispersed throughout. When the composition is to be used for coating or impregnating articles such as paper, fibers, fabrics, textiles, and the like or as a binder for comminuted materials such as cork, leather, and sawdust, vulcanizing and accelerating agents may be added. Among the former are sulphur, colloidal sulphur, soluble sulphites or sulphides, or other sulphur compounds. The sulphur chloride cure or other cold cure may also be employed.

75. Small, 1,696,815, Dec. 25, 1928. A composition for finishing leather is prepared from a solution of casein, shellac, wax, gum, albumen, and latex. These solutions are prepared as follows: casein solution: soak No. 1 casein in water, add 4 oz. of borax, and boil for 15 minutes, allow to cool and dilute to one gallon; shellac solution: boil No. 1 shellac with 4 oz. borax in water for 10 minutes and dilute to one gallon; wax solution: boil No. 1 wax (carnauba) with soap and dilute to 1 gallon; gum tragacanth solution: soak No. 1 gum tragacanth in 1 gallon of water over night, and the following morning boil and dilute to 3 gallons; albumen solution: dissolve No. 1 blood albumen or egg albumen in one gallon of water. A typical formula is a mixture of 1 part casein solution; 1 part shellac solution; 1/10-part wax solution; and 1 part albumen solution; pigments; and 1 part latex. Apply to the leather with 1 part gum solution to give the mixture body (on some leathers the gum solution is not necessary); the omission of latex will cause the mixture to lose the property of laying down the nap which is the main object of the finish.

76. Wescott, 1,702,225, Feb. 12, 1929. The process comprises impregnating rubber containing fibrous scrap with latex, coagulating rubber in place, drying the treated fiber, and milling into a rubber composition to distribute it therein.

77. Teague, 1,705,273, Mar. 12, 1929. The following rubber flooring composition is given for a concrete base: 100 parts rubber as latex, 100 parts ground flint, 50 parts Gilders whiting, 75 parts lithopone, 25 parts zinc oxide, 15 parts Montan wax, 5 parts casein (as ammonium caseinate), 5 parts Karaya gum, 2 parts sulphur, 1 part zinc dimethylaminodithiocarbamate, 20 parts sulphonated castor oil. The flint can be replaced by burnt clay or other non-absorptive fillers and can be varied in amount. Various compounding ingredients such as Gilders whiting, lithopone, zinc oxide, red oxide, Mapico yellow, or other pigments, can be used both to obtain the desired color and to alter the properties and cost of the compound. Other accelerators may be employed instead of the zinc dimethylaminodithiocarbamate mentioned.

78. Klein and Szegvari, 1,708,181, Apr. 9, 1929. It is often desirable to add liquid hydrocarbons or other oils to the rubber goods. Great difficulties are experienced in producing some of these oils in fine emulsions or in maintaining them in a finely emulsified state in the latex during the treatment of the latex for producing rubber goods or in preventing the accumulation of the oil on the surface of the latex. According to the invention this drawback may be eliminated by impregnating finely ground diatomaceous earth (kieselguhr) with oils. An aqueous dispersion of this impregnated kieselguhr added to the latex allows the even incorporation of oils with the goods that are produced from latex.

Lead oxide must often be added to rubber goods and may be easily dispersed in latex, but owing to its high specific weight, tends to settle quickly on the bottom. By preparing a thorough mixture of lead oxide and kieselguhr, which has a much smaller specific weight, heating the mixture to above the melting point of the lead oxide, and subsequently disintegrating the mixture, a dispersion may be obtained, each particle of which consists a combination of the heavy lead oxide and light kieselguhr. Great difficulties are experienced in dispersing sulphur. If, however, finely powdered sulphur is thoroughly mixed with finely powdered kieselguhr, lamp black, kaolin, or other suitable compounding substances, and the mixture, after being heated to above the melting point of sulphur, is finely ground, the particles of the mixture represent an adsorptive combination of sulphur and kieselguhr or sulphur and another compounding substance. This dispersion is stable and, when mixed with latex, will not flocculate the latex.

79. Dinsmore, 1,712,333, May 7, 1929. Barium sulphate, precipitated from saturated aqueous solutions of its chloride and sodium sulphate, is mixed with enough latex to give a weight ratio of rubber to $BaSO_4$ of 20:80. After considerable stirring, the excess barium chloride coagulates the latex and incorporates the precipitated particles. The solution of sodium chloride, resulting from the reaction, is then filtered or decanted, and the sludge is washed free from water soluble matter. To this master-batch about 1% of pine oil is added; the product is then dried and incorporated with more rubber on the mill as usual.

80. Biddle, 1,716,478, June 11, 1929. A coating composition comprises 10 pounds of rubber as contained in rubber latex, dispersed in 100 pounds of oil, which is a mixture of petroleum, castor, and linseed oils, and 75 pounds of a casein glue solution having a 20% casein content.

81. Pestalozza, 1,717,248, June 11, 1929. This covers a process of manufacturing rubber articles from latex by adding to the latex such an amount of coagulating agent as will coagulate the latex solely at a temperature between 70 and 100° C., bringing the latex into contact with a mold, heating the latex through the mold to said temperature to effect coagulation, and drying the coagulated latex. In preparing the latex, quantities not greater than 1.5 gr. of a soluble or slightly soluble salt of calcium and 1 gr. of zinc oxide, in suspension in a few cc. of ammonia added, stirring all the time, to 1,000 gr. of latex preserved in ammonia and containing 50% of rubber, or else quantities not greater than 1.5 gr. of calcium salt by suspension in a few cc. of ammonia water added, while stirring, to 1,100 gr. of latex having 50% of rubber preserved in ammonia, and containing 100 gr. of benzol or of gasoline, cause a light thickening, when the addition of the chemicals and the preserving of the latex are carried out at a temperature lower than 20° C., but are sufficient to cause a very rapid thickening and coagulation when the latex is brought for a sufficient time to a higher temperature, under 100° C. A few minutes is sufficient to obtain coagulation at a temperature of about 95-97° C.

82. Teague, 1,719,633, July 2, 1929. Articles are made by dipping into a composition consisting of rubber as latex 100 parts, kaolin 100 parts, sulphur 3 parts, accelerator 1 part, glue 1 part, zinc oxide 1 part, by weight.[1]

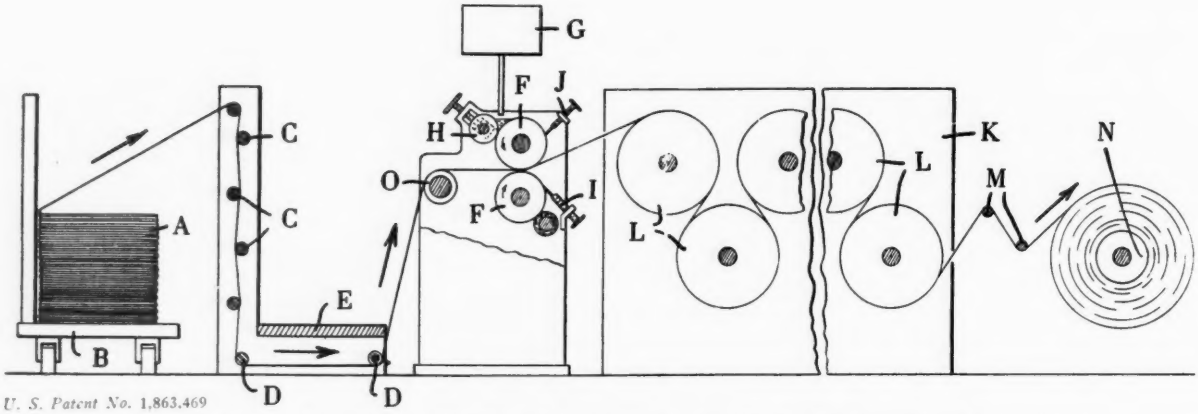
83. Teague, 1,719,948, July 9, 1929. An adhesive is prepared by emulsifying in water cumaron resin, which is a mixture of Para-cumaron and Para-indene and the polymerized homologues of cumaron and indene, the resin having a melting point between 20 and 100° C., preferably 40° C., and adding it to rubber latex. The emulsion of cumaron resin is prepared by melting the cumaron resin by heat and subsequently adding a small percentage of a mineral oil such as a medium spindle oil to dissolve and dilute the resin and dispersing the solution in water in the presence of an emulsifying agent such as soap. Dispersion is accomplished by a colloid mill. The following formula is given: water, 250 parts by weight; cumaron resin, 20 parts by weight; spindle oil, 14 parts by weight; rubber (in the form of latex containing 33% solids), 100 parts; water soluble soap, 0.5-part. The viscosity of the composition may be

(*Continued on page 38*)

[1] For details see "Latex Molded Shoes, Gloves, and Toys," INDIA RUBBER WORLD, December 1, 1929, p. 62.

Leather-like

Materials for Shoes and Wearing Apparel—Mechanical and Decorative



U. S. Patent No. 1,863,469

Fig. 1. Impregnating and Drying Apparatus for Making Textile Base Material

LATEX as a commercial commodity opened the way to important advances in rubber technology and extended the application of rubber to other industries for improving their wares and introducing new lines of manufacture. Notable among these products are combinations of textiles and fibrous materials. Of much interest and economic importance are leather-like sheet materials. These are entirely different in construction and utility in comparison with any preceding rubber products. Numberless combinations of rubber and textiles are used in the construction of rubber goods for mechanical purposes, weatherproof clothing, shoes, tires, etc., in which resemblance to leather is neither required nor attempted and the presence of the textile construction is as evident as that of the rubber.

The former so-called carriage cloth or artificial leather of the rubber trade consisted of cotton goods calendered one side with rubber composition embossed to resemble grained leather and finished with a coat of varnish. Its principal use was for making cheap weatherproof coverings. Although the utility of the material was considerable, there was no resemblance to leather.

Leather-like Products

The case is quite different with the new leather-like products now being made. These not only closely resemble leather of many sorts in appearance, texture, and finish, but they successfully rival leather in serviceability in a wide variety of practical applications. These leather-like stocks are of 2 general types of construction. The first has a woven textile base, and the second is wholly a paper construction. The purposes for which these materials are suited are already quite numerous. They are not substitutes for leather under present economic conditions, but rather competitors in the upholstery and shoe trades, art novelties, bookbinding, etc.

While products of the 2 types of leather-like materials may be competitive in some of their uses, each has distinctive merits and adaptations. The shoe manufacturing industry is utilizing a variety of both types of these materials that resemble leather, especially in highly styled shoes for women's wear featuring very attractive color and grain effects.

Woven Base

The following method is typical of that employed in making base sheet material for leather-like substitutes. It is a rubber cement and not a latex process.[1] The textile base is double napped cotton flannel in which both warp and filling are well napped on both sides. In the first step of this process the napped fabric is thoroughly impregnated with a rubber compound solution or cement composed of rubber with suitable amounts of organic resin as softener, zinc oxide as filler and toughener, and coloring pigment. This composition, churned to a smooth cement for 24 hours in naphtha, serves as the impregnating solution.

Figure 1 indicates a form of apparatus by means of which the solution may be applied to the cotton flannel. The fabric *A* is piled in reverse folds on a truck *B*, which is brought into position behind a set of horizontal tension bars *C* supported by a vertical frame. Passage of the fabric between the bars serves to straighten it out. It next goes beneath guide rollers *D* under a platform *E*, upon which the operative may stand, and thence through the impregnating machine.

This machine comprises 2 rollers *F, F*, set in bearings and positively driven. The impregnating solution is fed from tank *G* and stands in a bank between the top roller and a doctor roller *H* which governs the amount of solution fed to the upper roller and from thence forced into the fabric. Scraping blades *I* and *J* keep the rollers clean. Thorough impregnation of the cotton flannel may require a second passage through the machine with the surface reversed.

The second step consists in drying the impregnated cotton flannel. For this purpose the fabric may be run through any suitable drying apparatus. Figure 1 illustrates an apparatus comprising a chamber *K* containing a number of large heated drying cans *L, L*, around which the fabric passes, thus bringing both sides into contact with the drying elements.

The third step consists in ironing the dry and impregnated

[1]United States Patent No. 1,863,469, June 14, 1932.

Rubber Products

Purposes—Rubber Impregnated Textiles and Latex Bonded Fibrous Materials

fabric under tension gently to press the napped fibers on both sides into the impregnating substance and conceal the weave of the fabric. For this purpose highly polished steel bars *M* of small diameter may be employed and so set that the impregnated fabric has a sinuous course about them so that one bar irons one face of the fabric while the other bar irons the other face. From these bars the fabric is wound up on a roller *N*.

The fabric is drawn through the apparatus by windup roller *N* which is positively driven, and the drag is produced on the cans by the impregnating apparatus and also by the drag over a tension roller *O* located at the front of the apparatus.

Quarter Lining Material

The further treatment in the production of material for quarter linings of shoes comprises coating one side of the impregnated fabric with potato starch and spread coating the opposite side with a rubber cement composition containing about 30% of cotton flocks.

The goods are then vulcanized by the vapor cure and any acid remaining in them is neutralized by passing through a chamber, and spraying anhydrous ammonia against one or both surfaces of the material. One passage through the chamber completely neutralizes any acid remaining in the fabric.

One or more additional coatings are next spread on the previously coated side of the material and dusted with starch to remove the luster and prevent a streaky appearance of the surface. Since the uncoated side was vulcanized, these additional coatings are cured by being passed in contact with a solution of sulphur chloride diluted with carbon tetrachloride. Residual acid on the fabric is neutralized by admission of ammonia vapors into the curing chamber. The finally cured material is dust coated with talc which gives it a smooth leather-like feel.

The base material is a soft suede-like substance, very flexible and resembling the flesh side of leather. The finished material presents, however, on one side a composition similar to the grain side of leather with a mass of finely divided, closely knit fibers bonded together with the rubber compound. The other side, having the characteristics of the grain side of leather, is capable of similar treatment to that given leather. It is highly wear resistant, making it useful for such shoe parts as quarter linings. The grain side takes and holds leather finishes or pyroxylin compounds well because of the high percentage of fibers which permeate the material to the surface and also because of the porosity of the material.

A latex method of making shoe quarter lining of remarkable leather-like quality in strength, pliability, and feel is by doubling together plies of sheeting coated with vulcanized latex and finishing the face side with parchment glazed effect; while the back has the dull surface resembling leather on its flesh side.

Fabric Base Products

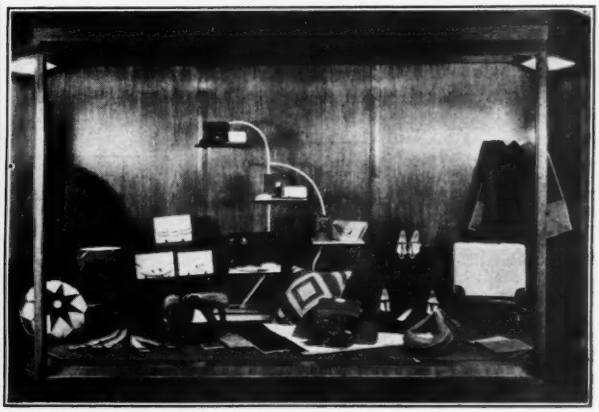
A fabric base leather-like material in suede quality is known as Doe-Tex. It is a lightweight, waterproof material with the dull surface softness of suede leather. It is finished in sharkskin, buffalo, caracul, and pig grain leathers, brocades, and embroidered and quilted patterns as well as the plain suede finish. It comes in a variety of colors including kasha, fawn, beige, cadet blue, vivid reds, green, and white.

It was perfected for use in men's and women's rain and sport garments, as illustrated in Figure 2. It is used also for belts, shoes, handbags, dress accessories, novelties, bookbindings, and household articles in the sample variety.

Pontan is another fabric base material for shoes and miscellaneous purposes, as shown in Figure 3. Its leather-like surface is obtained from heavily napped sheetings impregnated and coated on both sides. In the case of Pontan the choice of fabrics and compounds is designed to give maximum resistance against wear, proper elasticity for the shoe lasting operation, and sufficient strength for successful working. The material has pronounced leather-like qualities and wearing properties. It is produced, glazed and unglazed, in a full range of pastel colors and a variety of

du Pont Fabrikoid Division

Fig. 2. Doe-Tex Rain and Sport Garments



du Pont Fabrikoid Division

Fig. 3. Assortment of Pontan Products

leather grains giving it interest and style.

Latex-Paper Uppers

Distinctive footwear for women features great variety in design and color. It is rendered particularly attractive by the latex-fiber paper product known as "Onco," a material that closely resembles fine leathers in its pliability and soft, light textures. This material is shown with the natural colors and patterns of serpent skins and many other characteristic and unusual grain effects for vamps and quarters of shoes for women.

Brown Co.

Fig. 4. Onco Paper Upper Shoe

The material is a paper machine product and contains no textile woven construction. The fibrous base is rubber bound by latex. A woman's shoe with "Onco" upper is illustrated in Figure 4. Men's shoes have been made in which every part except the lacings and the nails are products of this type. This statement means that shoe bottoming leather-like stocks are available for the shoe trade.

Shoe Bottoming

Another line of latex bonded fibrous leather-like products for bottoming shoes is made by patented processes on modified paper making machinery. One variety, known as Laflex, is used for midsoles, doublers, slipsoles, and tops.

A second, called Insolex, is designed particularly for use as innersoles or insoles. A third latex bonded fibrous material is Lexide, a flexible leather substitute base designed to supplant fabrics for coating and graining. Its ultimate market is art leather novelties, belts, cap sweatbands, card table tops, bookbindings, and book and box covers. It also is applied for such mechanical purposes as automotive shims between car body and chassis, spacers, washers, gaskets, panels, and seat bottoms in car bodies, and tire rim liners to cover wheel spoke heads.

Remade Leather

Remade leather is obtained from leather scrap by a modified paper making process. The pulped leather fiber is latex-bound and vulcanized as indicated in a recent patent.[2] The method consists of adding to an aqueous suspension of disintegrated animal and vegetable fibers a tanning agent and a binding agent and separating the water from the slurry so as to leave a compacted layer. The binding agent is added to the slurry in the form of latex. After agitation of the slurry a coagulating agent such as tannic acid is added, and it is then passed over a screen to which suction is applied, thus depositing upon the screen a layer of felted fibers. The felted sheet is then compacted between press rollers.

This method of making artificial leather is of Italian origin. It was successfully conducted in the United States for a time, but has ceased for reasons other than technical.

A similar process of German origin for remade leather from scrap is detailed as follows[3]:

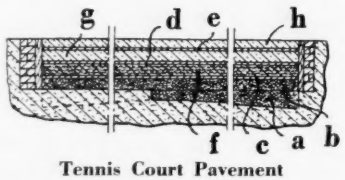
A method patented by A. Ferretti requires the leather waste to be ground wet and insures the retention of the structure of the individual fibers. About 100 parts of dry hare or rabbit skin waste is ground fine in a rag machine with the addition of water so that a thin paste is formed. To facilitate this action the waste is first softened by soaking in an acid or alkaline solution or in warm water. To the pulpy mass 5% of dilute latex, calculated on the dry skins, is added and then a suitable tanning material. The thin, watery suspension, in which the individual fibers are separated, is composed of 20 to 40 parts of water to one of skin, and the latex forms a uniform and extremely thin connecting film on the surface of the individual fibers. This suspension is spread on metal cloth and felted. The resulting sheet is then passed through a calender and finally vulcanized. The tanning, coloring, and defating processes may be carried out either with the material in the form of aqueous suspension or with the sheet.

This process would seem to give a product much less strong and useful than any of the preceding ones chiefly because of the poor tensile properties of the leather scrap used as the base.

[2]British Patent No. 360,968.
[3]H. Schmidt. *Kunststoffe*, Mar., 1932, p. 60.

Rubber Surfaced Tennis Court

A SUGGESTION to compound ground vulcanized waste into a mixture for the construction and surfacing of tennis courts, floors, etc., has been proposed in England.[1] This plan would seem to afford an important outlet for scrap waste worthy of development. The composition consists of scrap rubber in shredded, ground, or pulverized condition mixed with an aqueous emulsion of a bituminous binder with the rubber predominating.



Tennis Court Pavement

The bitumen may be first applied to the surface to be covered, the rubber being then spread on and rolled in, or vice versa. Cotton fiber, granulated cork, or stone chippings can be mixed with the rubber, which may be plasticized by a mineral oil, and rosin added. The composition can be vulcanized and, after the addition of ground scrap it may be further vulcanized. If lime is used as a filler, the action of the water upon the lime gives heat sufficient to produce vulcanization.

The illustration shows a tennis court section having rubble drains *a* and a clinker foundation *b*, with layers *c*, *d*, *e* of bitumen, and layers *f*, *g*, *h* of rubber and canvas, rubber and cork, and colored rubber, respectively, the rubber and bitumen being intermixed by rolling.

[1]British Patent No. 366,559.

Colloidal Compounding

Particle Size and Dispersion — Latex Compounding — Powdered Ingredients — Colloidally Fine Materials — Accelerators — Colloidally Ground Insoluble Colors

Webster Norris

COLLOIDAL compounding is being studied and attempted as a new development, ideal for compounding latex as applied in the rubber and other industries. The advantage obtained by perfect and permanent dispersion of ingredients with minute and uniform particle size is fixed quality of the product; in other words, no alteration is possible in curing quality or composition. The latex rubber particle is from 0.5 to 3μ in diameter. Materials of comparable particle size are already in use for special compounding effects in dry and liquid compounding. Other materials are readily prepared in the rubber plant by simple machinery, when desired for addition to latex.

In usual rubber manufacturing, ingredients of 100- to 200-mesh fineness serve the purposes of ordinary rubber mixing, and satisfactory dispersions are obtained by the employment of materials classed as softeners.

The intimacy of a rubber mixing depends on the degree of dispersion of the constituent ingredients and this in turn is regulated by their particle size. If crushing, shearing, and grinding in heavy roller mills result in a mixing of suitable uniformity for practical purposes, no greater fineness than customary need be considered.

In liquid rubber compounding, however, the mixing is effected by simple stirring together of the powders and latex. In such case ingredients of colloidal fineness introduced as water pastes give the most perfect mixing and one from which the ingredients will not settle out on standing.

It is important in dipping compositions, or those prepared for shipment for use at a distance, to keep the vulcanizing ingredients, sulphur and zinc oxide, and mineral colors from settling out and causing variations of quality. This condition is attained by using colloidal materials.

The use of latex compounds in cordage, paper, and textiles is increasing and in future developments the advantages of colloidally fine compounding materials will be sought.

Latex Mixing

Latex can be compounded with practically every ingredient known to dry rubber compounding if the process is conducted under suitably adjusted conditions to prevent coagulation or settling out. An outline of these conditions is given in the following paragraphs quoted from an English source[1] which summarizes the essentials of latex compounding.

"Most fine powders, when stirred into latex, coagulate the latter, and if latex is added to the powder, coagulation takes place even more readily. Coagulation manifests itself as a stiffening of the paste and the formation of clots. For this reason it is almost invariably preferable to convert the dry powders, which are used in compounding, into a paste with water before adding to the latex. Furthermore, since the rubber is present in latex in the form of very minute or colloidal particles, it will be evident that to obtain a homogeneous mixture of rubber with solid filling materials and vulcanizing agents, it will also be necessary to reduce the latter to an equally fine state of division. In the case of liquid or water-soluble compounding ingredients they may be readily added to latex either in the form of an emulsion or as a simple solution in water.

"As explained above, all the compounding ingredients must be thoroughly ground and dispersed to a smooth paste in water before they are added to the latex. A simple ball mill can be used for this purpose, but there are various precautions which should be taken. Hard waters should not be used for making the paste of the compounding ingredients, as soluble salts, especially those of calcium or magnesium, have a tendency to cause instability or coagulation of the rubber latex.

"For the same reason care should be taken to select fillers which are free from acids or soluble metallic salts. Otherwise most of the commonly used fillers are applicable in latex mixings, while china clay and blanc fixe appear to be specially suitable. It is generally advisable to use a protective colloid or dispersing agent in order to promote the formation of a smooth fine-grained paste which will not cause coagulation of the latex. . . . After having prepared the paste containing all the solid compounding ingredients, this should be gradually added to the required proportion of rubber latex with constant and fairly vigorous stirring, in order to promote complete and uniform dispersion of the ingredients. . . It is highly important to note that all direct contact of the stirrer with the walls of the vessel should be avoided, as latex mixings are highly sensitive to friction, which causes the mass to coagulate.

"In other words all the grinding and dispersion of the compounding ingredients must be carried out before addition to the latex, and the final mixture should not be subjected to any grinding process.

"The stability of latex mixings may be improved, or the consistency thickened by the addition of a viscous 10% solution of casein which has been dissolved with the help of a small quantity of ammonia. Care should be taken to avoid evaporation by keeping the containers closed as far as possible during the use or storage of latex mixings."

Powdered Ingredients

Sifting tests of compounding ingredients reveal the lack of uniformity in particle size of compounding ingredients prepared by grinding. Ordinarily the material will range from 80- to 100-mesh, with small percentages coarser and finer. This range of fineness suffices for general rubber work. If greater fineness is required, resort may be had to materials that are naturally of colloidal texture or are reduced to that condition by suitable grinding means.

Certain colloidally fine materials that have long been available commercially are referred to later on. Compounding materials of this extreme fineness effect perfect uni-

[1] "Rubber Chemicals for Latex Processes." Imperial Chemical Industries, Ltd., London, S. W. 1, England.

formity and superior tensile properties in the final rubber products. While such materials are not rated necessary in many of the applications of latex thus far made, they are found advantageous, if not essential, in latex mixings for the dipping process and a variety of other high quality products.

In the textile, cordage, and paper industries and for most uses in the rubber industry latex mixings are made with ingredients of the usual state of fineness employed for dry rubber mixings. Latex and dispersions are new in rubber technology. Changes in materials, compounding, and processing will certainly occur to facilitate and perfect new industrial applications. Attention is already directed to the compounding possibilities inherent in the use in latex of colloidally fine materials.

Colloidally Fine Material

Carbon blacks and special zinc oxides are all of colloidal particle size and consequently impart to the cured rubber marked improvements in tensile properties. In the case of carbon black the particle size is of the order of 6 to 8 millimicrons, which is far smaller than the rubber particles in latex. It is interesting to note that despite the smallness of carbon black particles the material, when mixed with latex, dried, and cured, does not reenforce the rubber. It does reenforce it, however, to the same degree as it does coagulated rubber when carbon black is milled into the latex rubber.

Certain zinc oxides by reason of their extreme fineness permit very satisfactory liquid suspension and because of their freedom from impurities which would induce high pH values they retard coagulation. Other additions to the list include colloidal sulphur, lithopone, high zinc sulphide pigments, pure titanium oxide, blanc fixe, Bentonite, etc., and a wide range of insoluble colors. Doubtless the list will grow with the extension of latex and dispersions to new uses and other industries.

Zinc oxide, sulphur, and insoluble water colors are supplied of colloidal fineness in the form of water pastes. In this condition they are readily miscible in latex. In connection with the use of dry powders for latex compounding, they may readily be made into a paste with water if they are first treated with a wetting agent. The function of such material is to act as an intermediary for the reception of water by the repellent powder. Wetting of dry powders may be facilitated by a short period of grinding in a ball mill without the use of a wetting agent.

Accelerators

Superactive water soluble accelerators are useful in latex dipping compositions because of their perfect dispersion in the mixings. When less active acceleration is desired, the materials required for vulcanization: namely, sulphur, zinc oxide and accelerators, also antioxidants, are reduced to the necessary degree of fineness by dispersion in water together with the fillers.

Colloidal Colors

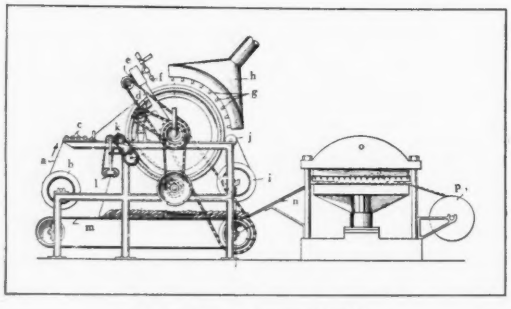
Particular interest attaches to the use of colloidally ground insoluble colors for rubber work because of their economy and brilliance. These may be prepared in paste form for liquid compounding and are also available milled in dry rubber serving as a master color batch for dry rubber compounding. According to a recent patent[2] colloidal colors milled into latex rubber possesses at least twice the tinctorial power of the same color ground and milled after the present practice. It is also possible to add the color in the form of a paste to latex.

[2]U. S. Patent No. 1,846,820, Feb. 23, 1932.

Composite Rubber Carpet

The Wearing Surface of Fibrous Material Is Needled to a Burlap Back Vulcanized to a Sheet Rubber Base

A PATENTED fiber surfaced rubber mat of new type is manufactured for use in automobiles and other places where attractive carpeting is subjected to rough service. This carpet has a wearing surface of fibrous material needled to a burlap back which is cemented and cured to a sheet rubber base. The apparatus used to effect this combination is indicated in the illustration and operates as follows:



Composite Carpet Machine

Yarns or other filamentary elements, *a*, are passed into the cementing machine from roll, *b*, under a series of tension bars, *c*, onto and around the drying drum at *d*. Above this drum is a cementing mechanism, *e*, so operated as to move across the surface of the drum in a path which is retraced at intervals so that spray from the cement nozzles, *f*, completely coats the exposed surface of the fabric. The cement may be applied either as an aqueous rubber dispersion or as a rubber solution.

If desired, a rubber composition containing ammonium carbonate or other suitable ingredient for making sponge rubber may be employed for the cementing medium. The cement sprayed surface is dried as it passes under air currents directed against it by outlets, *g*, from a blower, *h*.

Rubber coated backing material, such as needled fabric, is passed into the machine from roll, *i*, over roll, *j*, at which point it contacts with the cemented material descending on the drying drum. The fiber and the backing are adhered under pressure as they pass up in contact with the drum and over roll, *k*, from which point the united fabric passes through a lapper or folder, *l*, and descends to a conveyer, *m*, thence through a tray, *n*, to a press, *o*, where it is vulcanized and its surface is embossed under hydraulic pressure. The finished carpet is rolled up at *p*.

Patentable Inventions

In the Rubber Industry

THE following concludes the interesting and useful data on patenting inventions for the rubber industry, from our July 1, 1932, issue.

Why the Tillinghast Patent Was Valid

An excellent illustration of the validity of a patent for an article such as a bicycle tire is found in the suit (Dodge v. Porter, 98 Fed. Rep. 624) on the Tillinghast patent, No. 497,971, for a pneumatic tire, which consists of a single-tube tire composed of an interior rubber air tube, an outer rubber cover, and an intervening fabric, all united by vulcanization, the purpose being to prevent chafing between the interior and exterior tubes, which resulted in such tires as previously made. The court held that the tire was not anticipated by anything in the prior pneumatic tire art, nor is the construction devoid of invention because sheets of rubber with a fabric between similarly united were previously used in the making of rubber hose and rubber gaskets.

The following are the comments of the court:

"The evidence shows that Tillinghast invented his single-tube pneumatic tire, and disclosed it to others, as early as the summer of 1890, and that, consequently, his invention antedates the Boothroyd article in the *Cyclist*, describing a single-tube pneumatic tire, which was published in England in December, 1890. In the summer of 1890, Tillinghast was engaged in perfecting several other improvements in bicycle tires, which he thought at the time would yield him a more immediate pecuniary return than his single-tube pneumatic tire. These improvements related to a puncture-proof tread and an automatic pump; and between April, 1891, and July, 1892, he was granted 5 patents covering these inventions. He first applied for a patent for his single-tube pneumatic tire November 20, 1891. This application was several times rejected, and several times amended. On September 2, 1892, he withdrew his first application, and filed a new application, with a request that it be substituted for the old one. This request was granted, and the patent was finally issued on May 23, 1893.

"The principal defense in this case is that the Tillinghast patent, in view of the prior art, is void for want of invention. In considering the prior art as bearing on the validity of this patent, the evidence discloses several things which should be borne in mind. Although the rubber-tire art goes back to 1847, Tillinghast was the first to produce a practical and efficient single-tube pneumatic tire. His invention was not a mere improvement upon prior structures of the same type. The device has proved of great utility, and marks a distinct advance in the art. The Tillinghast tire to a large extent has supplanted in this country all other kinds of tires used on bicycles. The history of the rubber-tire art exhibits several distinct types, known, respectively, as the 'solid tire,' the 'cushion tire,' and the 'pneumatic tire.' The advantages derived from the solid and cushion tires are due to the resiliency of the rubber. The pneumatic tire does not depend upon the resiliency of the rubber, but upon the resiliency of the air with which it is inflated. The highly compressed air furnishes the highest degree of resiliency, and the elasticity of the rubber is only incidentally made available.

"Previous to the Tillinghast invention, the only practical pneumatic tire known was the Dunlop tire. This tire consisted of 2 tubes. It was constructed of a vulcanized inner rubber air tube and a separately vulcanized outer cover, the air tube and the cover being separate from each other. The Dunlop tire was defective, owing to the chafing and wear of the parts in contact with each other, due to having the inner rubber air tube separate from the outer rubber cover. It was to overcome the objections to this form of tire that Tillinghast invented his single-tube tire, composed of an inner rubber air tube an outer rubber covering, and an intervening fabric, inseparably united by vulcanization. There is nothing in the rubber-tire art which can be seriously considered as an anticipation of the Tillinghast structure. The solid rubber tire and the cushion rubber tire were not adapted to be inflated, and are manifestly different in construction and function. The only prior structures which bear directly on the question of anticipation relate to pneumatic tires. This branch of the art, as revealed in the present record, comprises 4 patents for pneumatic tires, and the Dunlop tire already commented upon.

"The earliest pneumatic tire is described in the Thomson patent of May 8, 1847. In this tire the air tube, composed of 'sulphurized caoutchouc or gutta percha,' is inclosed in an outer casing made of segments of leather riveted together. This casing also serves to attach the tire to the wheel rim. It is apparent that this structure is not an anticipation of the Tillinghast tire. They do not disclose a single-tube pneumatic tire having the structural characteristics of the Tillinghast tire. They do not disclose a single-tube tire composed of an inner rubber air tube, an outer rubber cover, and an intervening fabric all vulcanized together. The only other tire in the prior art at the date of the Tillinghast inventions was the Dunlop tire. This tire, as we have already said, was a double-tube tire, and it manifestly is not an anticipation of the Tillinghast device. In the construction of a pneumatic tire, Thomson, in his patent of 1847, considered an outer cover necessary for the protection of the inner rubber air tube an integral part of the outer cover. In the Thomas 1889 patents it was thought that a pneumatic tire could be made out of a single annular rubber tube without any intervening fabric. The Dunlop conception embodied a vulcanized inner rubber air tube and a vulcanized outer rubber cover, which were separate from each other.

"This was the condition of the art at the time Tillinghast made his invention. He was the first to conceive the idea of making the inner rubber air tube and the intervening fabric an integral part of the outer rubber cover, and so prevent the inner rubber air tube from creeping or chafing against the interior surface of the outer rubber cover. It is clear that the Tillinghast patent is not void for want of invention by reason of anything which is found in the prior rubber-tire art.

"Nor, in my opinion, is the Tillinghast patent void for lack of invention by reason of anything which is found in the prior rubber-hose art, or in the prior rubber-gasket art. It appears from several American and British patents that it was the common practice, previous to 1890, to manufacture rubber hose composed of an inner rubber tube and an outer rubber covering, with intervening fabric, all vul-

canized together. As this is not disputed, it is unnecessary to refer specifically to any of these patents. But, notwithstanding this fact, it still remains true that a pneumatic tire is quite a different thing from a rubber hose, and that each belongs to a distinct art. A rubber hose is a tubing of indefinite length, open at both ends. It is not an annular pneumatic tube forming a tire. There is nothing in the structure of rubber-hose tubing, nor in the various modes of producing such tubing, nor in the uses to which such tubing is put, which affords any suggestion leading to the production of a pneumatic tire. Nor does a rubber hose suggest that a tire having the structual characteristics of the Tillinghast patent would possess any special utility or advantages over other pneumatic tires. Rubber gaskets were constructed substantially the same as the Tillinghast tire. They were used for making tight joints in a vessel for treating sugar cane and bagasse. They are shown in the Duval patent of 1887. The Duval structure comprises a large vertical chamber to hold the crushed cane. The chamber is closed at its lower end by a removable bottom, which may be opened to permit the refuse solid matter to be discharged after treatment. The bottom must close against the lower end of the chamber with a tight joint, and to secure this result the joint is provided with a rubber gasket or packing ring.

"What has been said with respect to rubber hose may be repeated as to the rubber gasket; namely, that there is nothing in its structure, or in the mode of its production, or in the use to which it is put, that affords any suggestion that a pneumatic tire having such structural characteristics would be of any special utility, or would solve the problem of a practical and efficient pneumatic tire. In determining the question of anticipation of the Tillinghast patent based upon what was old in the rubber-hose art and in the rubber-gasket art it is well to bear in mind the language of Justice Brown, speaking for the Supreme Court, in Topliff v. Topliff, 145 U. S. 156: 'It is not sufficient to constitute an anticipation that the device relied upon might, by modification, be made to accomplish the function performed by the patent in question, if it were not designed by its maker, nor adapted, nor actually used, for the performance of such functions.'

"The inventive thought of Tillinghast was in the pneumatic tire itself, and not in the method of uniting 2 annular rubber tubes and an intervening fabric, which method may previously have been adopted for various purposes. The mere fact that it was old to vulcanize together an inner rubber tube, an intervening fabric, and an outer rubber cover in the rubber-hose art and in the rubber-gasket industry, does not prove that there was no invention in the application of such a method of construction, which such modifications as must be made, to a pneumatic tire. Although hose pipe and gaskets had been manufactured for years prior to the Tillinghast invention, it did not occur to any skilled mechanic that their method of construction would be successfully applied to the production of a pneumatic tire.

"From the best consideration I am able to give the question, I am of the opinion that there is nothing found in the prior art which anticipates the Tillinghast patent, and that, admitting the method of inseparably uniting by vulcanization an inner rubber tube, an intermediate fabric, and an outer rubber cover was old in rubber hose and rubber gaskets, the conception that such a form of construction would produce a practical and efficient pneumatic tire constituted invention within the meaning of the patent law of the United States. The pneumatic rubber-tire art dates back half a century. This record does not show that either the Thomson patent of 1847 or the later Thomas patents of 1889 describe practical tires. The Dunlop double-tube tire undoubtedly went into general use, but it was defective by reason of its duplex structure. Tillinghast, by uniting the different parts into an integral whole overcame the defects in the Dunlop tire, and produced a really efficient and practical pneumatic tire. The Tillinghast invention may seem simple now that it has been disclosed. This is often true of very important inventions. Upon this point it is well to remember the language of the Supreme Court in the Case of Loom Co. v. Higgins, 105 U. S. 580. In that case, Justice Bradley, speaking for the court, said:

" 'It is further argued, however, that, supposing the devices to be sufficiently described, they do not show any invention, and that the combination set forth in the fifth claim is a mere aggregation of old devices already well known, and therefore it is not patentable. This argument would be sound if the combination claimed by Webster was an obvious one for attaining the advantages proposed, one which would occur to any mechanic skilled in the art. But it is plain from the evidence, and from the very fact that it was not sooner adopted and used, that it did not, for years, occur in this light to even the most skillful persons. It may have been under their very eyes; they may almost be said to have stumbled over it; but they certainly failed to see it, to estimate its value, and to bring it into notice. . . . At this point we are constrained to say that we cannot yield our assent to the argument that the combination of the different parts or elements for attaining the object in view was so obvious as to merit no title to invention. Now that it has succeeded, it may seem very plain to any one that he could have done it as well. This is often the case with inventions of the greatest merit.'

"Let a decree be entered for an injunction and account in accordance with the prayer of the bill."

Novel structures or improvements in tires, inner tubes, or any other rubber articles are ordinarily patentable if they produce a new and useful result, provided such changes have not been previously known or described in the literature. Hundreds of patents have been issued by the Patent Office for tire structures. Many patents for rubber articles, too numerous to mention, have been sustained in the courts as valid.

Compounding Latex

(*Continued from page* 31)

modified and controlled by adding thickening and stabilizing agents which can be added to latex without upsetting its stability, that is, such gums for instance as tragacanth, Arabic, Senegal, Karaya and agar-agar, Iceland moss, Irish moss, casein, saponin; or such chemical thickeners and stabilizers for rubber dispersions as sodium silicate.

Two to 5 gr. of Karaya gum, for instance, may be soaked in about 100 cc. of water, and a gel thereby obtained. The cumaron resin is emulsified, while melted, in the presence of a small proportion, around 1.0% of a protective colloid such as glue and in the presence of a small quantity, around 0.5%, of an emulsifying agent such as sodium or potassium oleate or equivalent soap. While the emulsion of cumaron resin is still hot, it is combined with the gel of the Karaya gum in water in a high speed emulsifier to secure a thorough intermixture. After the emulsion of cumaron resin and the gel of Karaya gum have been intermixed, the mixture is allowed to cool to room temperatures before being added to the latex. Upon cooling, the mixture is added to the latex with gentle agitation, and the composition is allowed to age 4 or 6 hours.

(*To be continued*)

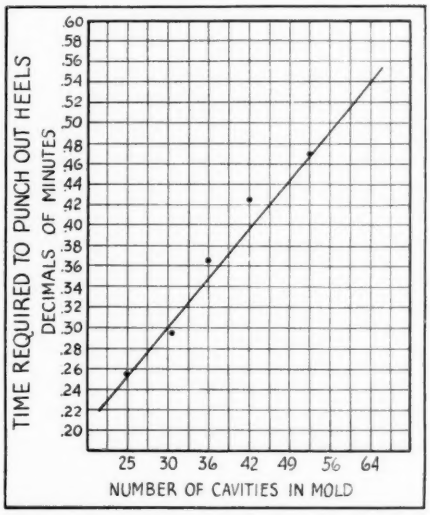
Standard Time Data

For Molded Rubber Heel Labor Rates

Ernest F. Thayer

THE process of vulcanizing molded rubber heels is one to which the use of standard formula charts for setting piece work rates on new types of work of the same nature is admirably adapted. The general process of curing heels in rubber plants is almost universally the same in its essentials so that an outline of the method by which standard data may be used will be interesting to men engaged in heel manufacture. The use of standard charts and formulas in this work will not only decrease the amount of time study that would otherwise be necessary to set the rates, but will also tend to make the rates more uniform and dependable.

Owing to the fact that conditions and production methods are radically different in every plant, it would be misleading to quote figures and other specific data that apply to the different elements of the operation. For standard element times that are applicable to one plant would be of no use in another, the operations of which, while they may be generally the same, would not come in the same sequence. This article deals with the theory of standard heel molding data and not the tabulation of specific time allowance figures.



Typical Time Allowance Chart for Punching Men's Heels from Mold Center Plate

It is, of course, first necessary to compute and construct the charts for each element of the operation on each type of heel. This work is done, by time study, in the usual manner employed in other lines of manufacture. Sufficient analytical studies are taken on the work to obtain the elements that are required for the operation. By plotting the time of each of these variable elements on graph paper, curves are set up which will give accurate time allowances for molds of any capacity. From these curves charts recording the time allowance for each element are made. (See illustration.)

It is necessary to have a group of charts for every radically different weight heel. The charts in each group will show the element time allowances applicable to that particular heel. Usually the following 5 groups are sufficient:

1.	Men's 3/8" and 1/2" half heels	8 washers
2.	Men's 5/8" and 3/4" whole heels	8 washers
3.	Men's 5/8" and 3/4" whole heels	13 washers
4.	Boys' 3/4" and 1/2" half heels	
5.	Women's 1/4" and 3/8" half heels	

Each group of charts shows the time allowance per cavity of each item in the operation, as listed below:

1. Removal of mold from press.
2. Disassembling mold parts.
3. Cutting overflow.
4. Punching heels from center plate.
5. Spraying mold.
6. Applying washers to pins.
7. Filling mold cavities.
8. Reassembling mold parts.
9. Returning mold to press.
10. Operating valves.
11. Operating hydraulic lift table.
12. Wire brushing mold.
13. Applying mold wash.
14. Loading washer machine.
15. Shifting stock boxes.
16. Fatigue allowance.

To ascertain the total elapsed time required to perform a cycle, multiply the total of these time elements listed by the number of cavities in the mold. In cases where an element is left out such as the elimination perhaps of washers on some types of heels the standard time set up for this element is, of course, not taken into consideration. In the original compilation of the charts and graphs for each one of these elements it will be found that those numbered 1, 2, 5, 8, 9, 10, 11, 12, 13 are practically constant on standard men's half heels regardless of any difference in capacity of molds. On molds which are very heavy, however, such as those used to produce a thick whole heel, these time element values will change and with 4 exceptions, 5, 10, 11, 13, will increase. Whereas the use of molds that produce a thin heel for a woman's shoe, and which are much lighter to handle, would mean a decrease in the standard time allowed in all but these 4 instances, 5, 10, 11, 13. Hence the necessity of grouping.

The other elements are all extremely variable, but fortunately increase or decrease in direct proportion to the number of cavities in the molds on heels of a given group. The curves used to plot these elements will show clearly the ratio of time increase to cavity increase and make the computation of standard allowance very simple.

The setting up of these standard times grouped as suggested above will, in addition to giving dependable job time allowances, also make it quite easy to predetermine several other important things such as:

1. Probable piece work rate. To be used in figuring costs.
2. Best arrangement of molds to have in press that will give the heels the proper cure with as little lost time as possible during the cycle.
3. Information as to possible production. For use in making promises.
4. Number of men and amount of stock required to produce the prospective business.
5. To anticipate and overcome possible interference with other work.

However the rates should not be set arbitrarily on jobs by means of the standard allowance charts without checking them by actual time study. Usually no matter how accurate or complete the data on the charts, conditions are always encountered on new work which can only be discovered by actual observation. Therefore while standard formulæ are unquestionably of great value in obtaining information in advance of production as well as keeping the rates uniform, it is imperative, in fairness to both the operators and the company that an actual check be made of every rate assembled by formula and standard time. Perhaps only a check of one cycle may be necessary to confirm the theoretical rate, but this check will assure all concerned that the rate is as nearly accurate as it is possible to establish.

EDITORIALS

Our Declining Footwear Industry

THE United States rubber footwear industry faces serious loss if not final extinction unless something is done, and promptly, to remove the competition of foreign manufacturers of low priced rubber footwear.

In 1931 the United States' production amounted to $48,000,000, compared with $111,360,000 in 1929, a decline of 57%. From 22 shoe factories in 1929 the number of United States plants has declined to 15 in 1931.

Recent statistics for the first 6 months of 1932 reveal that 15,000,000 pairs of rubber soled canvas shoes were produced in this country. During this period 1,675,000 pairs of foreign made shoes were imported. These figures are 11.11% of our domestic production.

During the 12 months of 1931, United States imports of rubber soled canvas shoes of foreign origin were 208,000 pairs. For the first 6 months of 1932, 1,675,000 pairs of canvas shoes were imported into this country, a startling increase of 701% in foreign imports.

A committee from the Footwear Division of the R. M. A. appeared last month before F. X. A. Eberle, Commissioner of Customs, and protested against the sale of canvas footwear of foreign origin in this country at less than cost of production. The Commissioner promised an immediate investigation for the protection of the footwear industry. Unless this investigation results in practical means to eliminate this disastrous competition, rubber footwear manufacturers in this country will eventually be forced out of business.

Manufacturers Patient Taxpayers

ALTHOUGH oppressed as are few other classes in the body politic by parasitic politicians, manufacturers complain comparatively little about increasing taxation—rapidly becoming confiscation, although they must of necessity suffer much. Perhaps they fancy, as do the taxing authorities generally, that the increasing burden can be passed along to the ultimate consumer with little or no complaint on the part of the latter; or perhaps they feel that it is but a contribution which should be patriotically made to meet the expanding functions of government. The fact seems to be overlooked that there is a limit to customer-absorption in price total as there is to the amount which American manufacturers may charge for their products in their home market, without inviting keen rivalry from outside competitors.

It has been estimated that while government expenditures, federal, state, and local, in 1912 totaled $2,000,000,000 as compared with $33,000,000,000 total national income, or 6.1%, such expenditures in 1931 aggregated $12,000,000,000 as compared with $54,000,000,000 total national income, or 22.2%. Plainly a serious stage has been reached when, without corresponding benefits, nearly a quarter of the country's total income goes into taxes. Individual incomes—buying power—may be greatly reduced through a variety of circumstances, but the increasing cost of government must nevertheless be met. It means less money available for private enterprise. It also means that big and little business should cease to be such patient taxpayers as they have been; that too much stress should not be put on mere party politics; and that business administration—real economy—should be made a paramount issue in our national election.

Our Overseas Trade

THE energy with which American rubber manufacturers are striving to hold, if not to extend, overseas trade is well illustrated in the case of British Malaya. Two important handicaps have been the British abandonment of the gold standard, by means of which, because of the fixing of the Straits dollar with sterling, importers of American goods have been forced to pay from 30 to 50% more in order to receive the same gold dollar return; and the growing propaganda by local merchants to buy British goods and the insistence of municipalities that, as in the case of the colonial government, practically all sorts of purchases must be made from Great Britain.

Most American exporters have not only reduced prices to meet frequent local reductions, but also to meet the exchange differential, the result being considerable sacrifice in profits and a large decline in United States imports, as from 105,000 tire casings in 1930 to 70,000 in 1931, or 47% of the market requirements in 1931 as compared with 49 in 1930.

Still American exporters want to keep their shops busy; they are hoping that prices for basic commodities will rise soon and give the colony better purchasing power, and they note with interest that ordinarily British Malaya is a good tire market, having over 40,000 motor vehicles registered or more than in the whole of China.

What the Rubber Chemists Are Doing

A. C. S. Rubber Division Meeting

THE Rubber Division of the American Chemical Society met at Denver, Colo., August 23 and 24, 1932. Morning sessions were held at the Shirley-Savoy Hotel on each of these days for the reading and discussion of papers. The usual banquet of the Division was omitted. Instead a special mountain trip was provided August 25, arranged through the courtesy of the Gates Rubber Co. The technical program comprised 8 papers; the abstracts of which appear below:

Some Factors Involved in the Banbury Mixing of Zinc Oxide. The laboratory Banbury mixer is used to evaluate the mixing characteristics of various commercial and experimental samples of zinc oxide and to act as a guide in establishing the variables in mixing procedure which may be of importance on commercial units. The several types of zinc oxide vary in the ease with which they incorporate into rubber and in the excellence of the dispersion finally obtained; these 2 variables are mutually independent. The effect of particle size and condition of the surface on these properties of the mix has been studied. The mixing procedure used also affects the ease of incorporation and final dispersion. The effect of the type of rubber used, temperature, softeners, ram pressure, rotor speed, loading factor, pigment-rubber ratio, rate of addition, water addition, sheeting off and subsequent milling, rotor clearance, and power consumption is discussed.

While procedures established on the laboratory machine cannot be followed directly on commercial installations, it has been found possible to translate the results of these experiments into factory practice with a reasonable amount of experimentation on the larger unit. The evaluation of the mixing characteristics of oxides on this machine have also been found to correlate well with those obtained commercially. W. C. Mathews and G. S. Haslam.

The Effect of Particle Size on the Physical Properties of Rubber. The particle size of the pigment may be expressed in terms of several average diameters depending on the method of measurement. In this work 3 of these averages were considered: namely, d_1 which is the arithmetical mean, d_3 which is the average diameter from which specific surface is calculated, and D which is the average diameter from which the number of particles per gram is calculated. A series of samples was prepared, and these 3 average diameters were determined. These samples were then compounded with rubber and several physical properties measured. As a result of these tests it is shown that, in general, the physical properties vary directly as the specific surface and the number of particles per gram. However, if the number of particles per gram is maintained constant and the specific surface is varied, it was found that the physical properties vary directly as the specific surface. No such relationship was found when the specific surface was maintained constant and number of particles per gram varied. It is further pointed out that the only satisfactory means of measuring the d_3 diameter and, therefore, the specific surface is by some microscopic method which determines the size distribution curve for the pigment. G. S. Haslam.

Evaluation of Variable Temperature Cures. The paper explains by simple analogies the theory of the method by which it is possible to evaluate the vulcanizing effect of a heat treatment, which varies with respect to both temperature and time of cure, in terms of the length of time at any preselected temperature which will give the same vulcanization effect. This is defined as the "equivalent cure." A concise set of working directions for the application of the method to a specific problem is presented. As a further extension of the method it is shown how it is possible by knowing the temperature rise curve under a given set of time-temperature conditions to calculate a temperature rise curve for another set of time or temperature conditions, and from this arrive at the "equivalent cure." G. K. Hinshaw.

Slide Rule Calculation of Time-Temperature Relations in Vulcanization. This paper covers that type of time-temperature calculation in which no temperature lag is involved and where some form of graphical integration would normally be unnecessary. Rate of vulcanization increases with temperature, and the relation is logarithmic. The ordinary slide rule is built on the logarithmic principle and from that fact is adaptable to time-temperature calculations. One of the logarithmic scales is used for time values, and a uniform scale (either the "L" scale or a specially constructed scale) is used for actual temperature values. With a rule so arranged it is possible to convert cures from one temperature to another with only one setting. Speed, convenience, and accuracy are its outstanding features. J. H. Fielding.

Some Factors Affecting the Rate of Vulcanization of Chloroprene Plastic Polymers. The rate of vulcanization of chloroprene plastic polymers and the range of cure and physical properties of the vulcanizates are profoundly affected by adding various metallic oxides, sulphur, certain acidic softeners, and other organic compounding ingredients. These effects are, in general, not produced except when the above-mentioned materials are used in specific combinations with one another. E. R. Bridgwater and E. H. Krismann.

Determination of the Temperature Coefficient of Vulcanization. II. The temperature coefficients have been determined for stocks accelerated with tetramethylthiuram disulphide, and a butyraldehyde-aniline condensation product. Cures were made at 10° F. intervals from 310° F. to 220° F. Cures were also made in a constant-temperature oven in a bolted mold at 210°, 185°, and 160° F. The lower temperature cures were made to determine whether the coefficient changed in this range. The values obtained from modulus and combined sulphur data were found to be 1.438 and 1.548 respectively for tetramethylthiuram disulphide and 1.672 and 1.625 respectively for the butyraldehyde-aniline condensation product. These values are for 10° F. intervals. It was found that the coefficients did not change at the lower temperatures. R. V. Sandstrom.

The Effect of Oxygen and Water on the Polymerization of Chloroprene. Oxygen increases the rate of polymerization of chloroprene and tends to promote the formation of thermoplastic polymer rather than α-polychloroprene, but it is not necessary for either the polymerization to α-polymer or for the conversion of α- to μ-polychloroprene during vulcanization. Traces of suspended water in massive chloroprene accelerate the polymerization mildly. The polymerization in emulsions of the chloroprene-in-water or water-in-chloroprene type with oriented polar dispersing agents such as sodium oleate proceeds rapidly to μ-polymer. The nature of the polar interface appears to be the prime factor in causing the rapid polymerization of these emulsions. In addition it appears that the chloroprene must be confined between 2 polar interfaces; the distance between which is of the order 1 μ or less. Ira Williams and H. W. Walker.

Rubber-Pigment Ratios in Batch Control. The viscosity, plasticity, and elasticity of rubber mixes have been investigated in the raw and cured state. One, two, or all of these properties may be

present at the same time and have a direct ratio to the quality of the mix. They may be calculated or measured and serve as a criterion of dispersion in the batch. The percentage dispersion of the pigments in the batch is the quotient of the actual instrument readings divided by the calculated readings. They can be taken by a modified Shore elastometer and durometer. Ample illustrations are cited to support the conclusions. Howard L. Wiley.

The following papers were read before the Division of Industrial and Engineering Chemistry.

Individual Tire Vulcanizers—a Recent Development in Vulcanizing Equipment for the Rubber Industry. Individual or unit vulcanizers for pneumatic tires are one of the more recent developments in vulcanizing equipment for the rubber industry. A description of the construction, design, and operation of these vulcanizers is given in considerable detail. In a comparison with the conventional heater press-conveyer method of vulcanizing tires, the individual vulcanizer is shown to be more economical in its direct labor, operating, and maintenance requirements, more flexible from the standpoint of rubber compounds employed, but less economical when production conditions require frequent mold changes. It is concluded that the individual vulcanizer is worthy of consideration for future equipment requirements. L. R. Keltner and H. Gray.

Manufacture of Hard Rubber Dust. This paper describes a process for mixing rubber with sulphur and accomplishing vulcanization at the same time. The resulting product is in granulated form ready for fine grinding. Standard equipment designed for other purposes is made use of in carrying out the process. Harry McCormack.

Surface Treated Zinc Oxide

Zinc oxide Code No. 352 is of fine particle size, especially surface-treated to allow ease of incorporation and a high degree of dispersion.

Grit in Carbon Black[1]

Conclusions

Rubber channel black has been found to contain amounts of grit retainable on a 325-mesh screen varying from 0.05 to 1.7%. This residue is shown to be objectionable from the standpoint of the flexing resistance of the resulting rubber compounds, higher concentrations being correspondingly more harmful than lower concentrations. The coarser fractions appear to give rise to larger cracks and earlier appearance of cracking than the finer material. Even that which passes a 200-mesh screen but is retained on a 325-mesh is objectionable.

[1] *Ind. Eng. Chem.*, May, 1932, 559-62. Presented before the Division of Rubber Chemistry of the A. C. S., Detroit, Mich., Feb. 25-26, 1932, by John N. Street of The Firestone Tire & Rubber Co., Akron, O.

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Plastogen

Plastogen is a thermo-plasticizing agent eliminating breaking down of rubber. It is a non-toxic, non-corrosive, pleasant smelling, oily liquid, straw colored in bulk but almost water white in thin films. Its gravity is 0.83 equivalent to 7 lbs. per gallon. Plastogen does not affect the rate of cure or the aging properties of compounds. Nor does it bloom out and it prevents to a considerable extent the blooming of other materials such as antioxidants. It also assists in eliminating scorching.

Latex Applications

Ingenious Uses of Latex[1]

THE failure to make earlier and more varied and extensive direct use of latex in manufacturing may best be explained by the handicaps which up to quite recently have discouraged the handling of this material in its liquid state. The chief adverse factors have been the similarity in certain respects between it and cow's milk, souring and putrefying rapidly unless preserved and quickly coagulating through one of 4 methods.

A cc. of 35% normal latex contains about 200,000,000 of pear-shaped particles, each with a negative charge of 0.035-volt. For commercial use total solid contents are increased to about 65%, and 1½ to 2% of ammonia added as a preservative although formaldehyde, sodium, or potassium hydroxide serve the same purpose. Coagulation may be effected by heat, mechanical means, transfer of electrons, or by adding positively charged ions; the latter method is chiefly employed on the plantations. In sprayed latex manufacture use is especially made of mechanical means and heat transfer.

The fact that such a relatively large mass in the rubber particle is associated with so small a quantity of electricity explains the enormous coagulating effect of positively charged electrons, as indicated in the latex electrolytic deposition method where a yield of 2 gr. of dry rubber per ampere minute has been obtained. Compared with this is the theoretical deposit of copper, 0.01947 gr. per ampere minute. Sheppard and Eberlin, American inventors, have used in electrolytic deposition a current density of 3.85 to 5.13 amperes per sq. dm. at 105 volts.

For the indispensable vulcanization process the latex is compounded with curing agents, antioxidants, reenforcing ingredients, etc.; coagulation before deposition is averted by careful introduction of such materials so that they may not dissociate or introduce positively charged ions. In the process of Schidrowitz separate vulcanization is eliminated by curing the rubber particles before aggregation. Through the proper selection of water-soluble accelerators vulcanization is effected below the boiling point of water, the final step being drying of the articles formed in deposition. High tensiles are obtained, but low resistance to chafing and abrasion are said to be objections. Boiling water or open steam is used in curing latex deposits, followed with thorough drying to get rid of porosity due to retained moisture.

Another factor in favor of this method is low waste and ease of forming irregular objects such as plating racks, hanger arms, washing trays, dipping baskets, conoidal fans for handling corrosive fumes, spinerette tubes, screens for wet screening of corrosive materials. All these point to the adaptability of this process to a wide variety of uses.

In the non-electric field an important use of compound latex is in the manufacture of dipped goods, toy balloons, photographic papers to produce certain dulling effects, sponge rubber, in the canning industry for sealing seams, paints and lacquers, artificial silk, shoe manufacture, separators for storage batteries, hog hair or other fibers for upholstery stuffing, etc. These are only a few of the uses and possibilities of liquid latex, and every day additional uses are suggested, and much progress is being made in this development.

[1]Abstract of a talk on liquid latex given by W. R. Hucks, chemist, Pacific Goodrich Rubber Co., at a meeting of the Los Angeles (Calif.) Group, Rubber Division, A.C.S., July 7, 1932.

Powdered Latex

HITHERTO liquid latex or compounded rubber has been used for lining or covering objects with rubber. In covering very large surfaces with highly concentrated rubber solutions difficulty existed not only in applying the rubber but also in curing, particularly in the case of extensive areas which cannot be enclosed for the purpose of complete vulcanization.

E. A. Hauser in his work on latex proposes mixing fillers and vulcanizing agents with concentrated latex and spraying this on surfaces to be covered, but here are difficulties in obtaining a homogeneous mixing of the ingredients with concentrated or even ordinary latex. These difficulties have so far been the chief obstacles to the utilizing of latex for road surfacing, as may also be seen from the annual report of the Rubber Research Institute of Malaya, for 1931[1], in which latex compositions for roads are discussed.

But all these troubles, it is said, have now been overcome by a new invention[2] of a method and machine for converting latex into a dry rubber powder, and a process for compounding and applying it to large surfaces, particularly roads. The machine is designed on the principle of a spraying apparatus for converting the latex into a dry powder. The liquid latex passes in at one end of the apparatus and comes out at the other end in the form of a dry powder. The tendency of the rubber particles to form a spongy mass is overcome by adding a solution of dextrine to the latex. When the solution dries, the dextrine coats the rubber particles with an extremely fine powder and causes them to remain dry and separate.

When large areas, as roads, floors, the walls and floors of chemical reservoirs, etc., are to be surfaced or lined with rubber, the dry latex powder is shipped in drums to the place where it is to be applied and mixed on the spot with dry fillers, sand, chipped stones, together with any colors desired, in an ordinary mixing drum. Then the whole is thoroughly mixed to a paste with a rapidly evaporating liquid, as alcohol, in which the vulcanizing agent and accelerators have been dissolved. The paste is then spread on the concrete, stone, or wood surface and rolled out in the usual way. The rollers are slightly heated; this condition causes the paste to stiffen and at the same time promotes vulcanization. Within an hour, depending on the liquid used, a road so treated is ready for traffic.

The cost per sq. m. of a road surface, it is claimed, need not exceed that of a good asphalt road, and the surface has much greater resistance to wear, to say nothing of noiselessness.

Rubber men, however, are inclined to be cautious and do not wish to indulge in hopes that they perhaps fear may not be realized. However, if some are still skeptical, there are others who appear to be enthusiastic about the process. The London *Rubber Age* of August, 1932, reports:

"Powerful British financial backing is said to be behind a plan to establish at Amsterdam a company for the manufacture of rubber in powdered form using a new mechanical process. The rubber producers, it is added, are adopting a waiting attitude in regard to this experiment, which aims at mixing this powder with asphalt."

[1]INDIA RUBBER WORLD, Aug. 1, 1932, p. 59.
[2]M. J. Stam, inventor, The Hague, Netherlands.

Latox and Performite

TWO types of rubber insulation of special merit have recently been introduced. They are known respectively as Latox and Performite.

Latox insulation is practically pure vulcanized rubber. It insures a conductor insulation of uniform, high quality, and even thickness and is particularly suitable for use where a lightweight, small diameter, insulated conductor is needed. Latox insulated wire covered with cotton braids or other usual insulated wire covering can be used wherever rubber covered wire is used.

Performite insulation is an improved rubber compound mixed and vulcanized in the usual way, but having extreme durability and surprising immunity to oxidation. Its remarkable resistance to aging and deterioration combined with the normal electrical and physical properties of other high-grade rubber insulations enables it to satisfy the demand for superaging, trouble-free insulation that will outlast the installation. With a very few exceptions it is applicable wherever rubber insulation is needed.

New Goods and Specialties

Las-Stik Haf-Sole

Van-ite Golf Ball

Valve Cap

Rubber Half Soles

NOW on the market appears a pure gum rubber half sole suitable for all footwear, rubber boots, galoshes, etc. This sole has many advantages claimed for it. It will not mark the floors and is non-skidding on wet pavements and walks. It is also waterproof. The Las-Stik Haf-Sole, as it is known, is resilient and cushioning for weary feet. Cemented to new or old shoes, these soles add to the life of the footwear.

They are easily applied; the entire operation takes less than 20 minutes. You lay the rubber sole on the shoe sole, which must be perfectly dry and clean, and trim the rubber at least ⅛-inch smaller than the shoe sole all around. The latter should be deeply roughened over its entire surface back to the heel. Then remove the backing from the rubber sole and apply one thin coat of cement, supplied for the purpose. After it has dried thoroughly apply another thin coat over the shoe sole back to the heel. Allow to dry 10 minutes; then put a second coat of cement on the leather sole and allow to dry 30 minutes. Place the Las-Stik sole in position carefully and firmly. Hammer it down, especially around the edges.

These soles come in 4 sizes: HS-1, women's and children's; HS-2, men's medium and boys'; HS-3, men's wide; and HS-4, Jumbo. The Las-Stik Mfg. Co., Hamilton, O.

New Golf Ball

AN INEXPENSIVE, yet said to be very satisfactory, golf ball is made of a new material, Van-ite, from which the ball gets its name, the result of modern laboratory research and development. The manufacturer states that this ball is lively, accurate, non-cutting, durable, good looking, and long lived. The cover is welded to the body to form one unit. The ball, which appears in mesh marking only, is finished with a tough white enamel. It is attractively displayed in a 3-color carton. Van Cleef Bros., Woodlawn Ave., 77th and 78th Sts., Chicago, Ill.

Dublchek Valve Cap

DUBLCHEK is an airtight and permanent type of valve cap for tire valves. It eliminates the time and the labor involved in tire inflation. The user experiences no need of removing and reapplying valve caps to service tires. Inflating and pressure testing is done right through the cap, which also excludes dust and dirt. More efficient maintenance of tire pressures will mean increased tire mileage and greater comfort. A. Schrader's Son, Inc., Brooklyn, N. Y.

Improved Heating Pad

FOR treating sprains, contusions, abrasions, infections, etc., and for those ailments where moist heat frequently is recommended has been designed Electro Sheet, a new pad for moist or dry heat. This device can be set to any of 3 desired heats: high, medium, and low, by a mere flick of the thumb. As the switch lever is provided with notches, it is easy to tell the position even in the dark.

Many advantages are claimed for this new product. It is thoroughly waterproof and can be washed with soap and water or germicidal solutions to insure perfect cleanliness at all times. Since Electro Sheet is thoroughly non-absorptive, it cannot absorb atmospheric moisture, perspiration, or body odors.

It is, moreover, constructed of nothing but wire, metal thermostats, and heat resisting rubber; consequently it cannot short circuit and catch fire. It can also be used with moist cloths and compresses without danger of short circuiting. It is designed to operate on all ordinary house currents.

This heating pad is more than only a bed-warmer. Being thin, flexible, and body conforming, it can be used for local application of heat to any part of the body. One of the most satisfactory methods of use is to wrap a piece of flannel, wet or dry, over the affected part. Then wrap around it Electro Sheet covered by a dry towel to retain and localize the heat. The Seamless Rubber Co., New Haven, Conn.

Rubber for Scrub-Brush

ANY device that tends to lighten the housewife's task is sure to win her favor. Now comes Rub-R-Scrub, a new scrub-brush with a wooden handle and a special sponge rubber base. Between these 2 may be inserted any form of soap. Then the brush, dipped into water, is ready for use, for it suds instantly. The suction action of the rubber insures better cleaning, and, of course, rubber will outwear ordinary brush bristles. As the rubber is detachable, it can be easily cleaned. This brush will not scratch; so is ideal for linoleum, varnished and waxed floors, painted walls and woodwork, tile floors and walls, porcelain, and enamel.

The patented soap holding and automatic sudsing feature of this new brush is convenient and uses less soap. It is economical, too, for the housewife can utilize all the small scraps of soap left over from other uses. Rub-R-Scrub comes in attractive colors in 2 sizes, 7 and 9 inches. Clean Home Products Corp., 1401 W. North Ave., Chicago, Ill.

Electro Sheet

Rub-R-Scrub

New Machines and Appliances

Colloid Mill

RUBBER chemists and users of liquid latex find a colloid mill an indispensable adjunct in the preparation and mixing of materials for latex compounding. In this connection the Eppenbach mill offers important advantages. It is built in a number of types and capacities for industrial use and is moderately priced. A special feature is the comparatively slow speed employed: namely, 1,750 r.p.m. on 2 sizes and 750 r.p.m. on 2 others, thus greatly diminishing the power factor. Interchangeability of heads makes cleaning of the mill very easy.

Having special reference to the laboratory mill, this type embodies the following particular advantages: The grinding gap is fully adjustable and can be locked in any required setting. The built-in motor for speeds up to 10,000 r.p.m. permits the material to be circulated for batch mixing should that be desired. The turbines not only subject the material to great turbulence, but they also produce immense pressure, which forces the material through the grinding gap producing, in general, the finest grinding and most complete dispersion.

The mill can be quickly and easily taken apart for cleaning and is operated by a Universal motor connected to a lamp socket. Eppenbach, Inc., 45-10 Vernon Blvd., Long Island City, N. Y.

Steel Writing Tool

WRITING upon hardened steel, glass, lead coated stock, and painted surfaces can be done almost as quickly as using a lead pencil on paper. This spectacular feat is accomplished by a handy little device that is one of the latest air-tool accessories of the Kipp air grinder, which makes available the necessary 40,000 r.p.m. minimum speed to operate this tool.

Eppenbach Laboratory Mill

The illustration shows the tool being used for recording data on milling cutters. Madison-Kipp Corp., Madison, Wis.

Portable Car Unloader

THE portable troughed belt feeder illustrated is designed to facilitate unloading sand, coal, coke, crushed stone, and other loose bulk materials from hopper bottom cars. It receives the material as it drops from the hopper, carrying it to a portable or stationary conveyer.

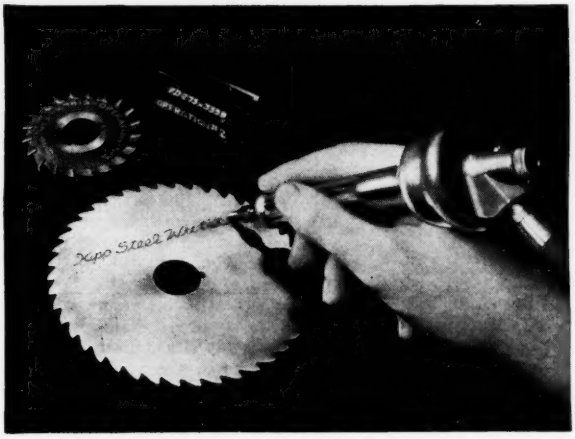
The feeder is 18 inches wide and 14 feet long. It is powered by either a 3 h.p. electric motor or a 4½ h.p. air-cooled gasoline engine. The rubber belt is 18 inches wide, fitted with flat cleats on close centers, and its edges are amply protected. Replaceable wear angles fitted to the frame hold the belt in position at the curved section of the feeder.

The carriage wheels are mounted on spindles that can be lowered as much as 8 inches to compensate for inequalities in the level of the yard where the feeder is used. The drive from the power unit to the head shaft is through a series of steel roller drive chains running over machined sprockets. Pressure lubrication is provided throughout. The Fairfield Engineering Co., Marion, O.

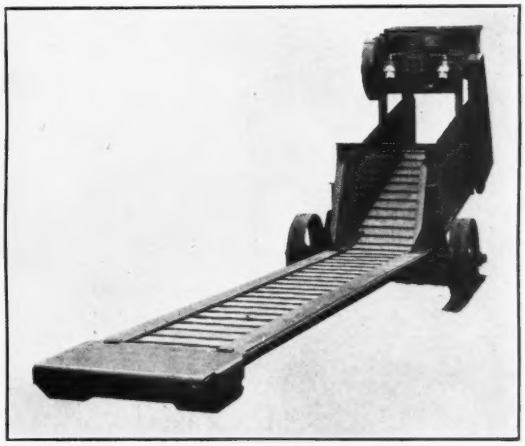
Rubber Bale Cutter

THE machine here pictured is a new high speed cutter that will rapidly cut all kinds of baled crude rubber with maximum of efficiency, convenience, and continuity of operation. It is of the horizontal, hydraulic type, employing slicing and extrusion principles for cutting. The frame is built of welded steel sections to provide rigid support for the mounted machine parts on the frame. The hydraulic cylinder is bolted between the upper and lower pairs of channel sections forming the main frame structure. The oil tank and pump unit are mounted on top of the frame over the hydraulic cylinder. The moving head attached to the end of the ram is guided vertically by 2 pairs of steel rollers bearing against the inner flanges of the channels. The lower pair of rollers also supports the weight of the head.

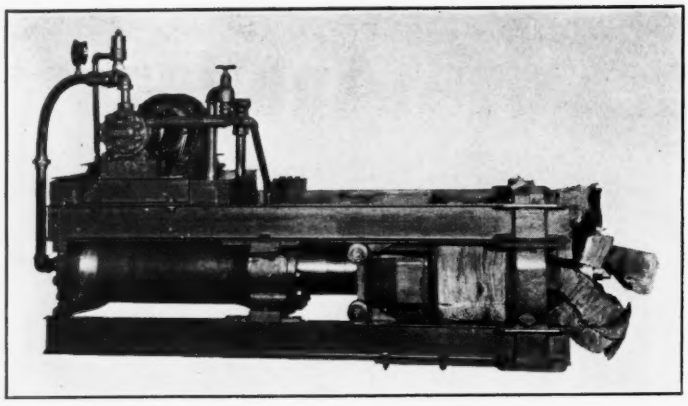
The operating medium is oil supplied to the hydraulic cylinder under pressure by a ball bearing gear impeller pump. The cutting head has 10 knives arranged in a basket-like form, radiating from a central cone to the outer holders welded into the main frame. With this arrangement the bale comes into contact with the outer ends of the knives first, the effect being



Kipp Steel Writer



Fairfield Belt Feeder



Farrel-Birmingham Rubber Cutter

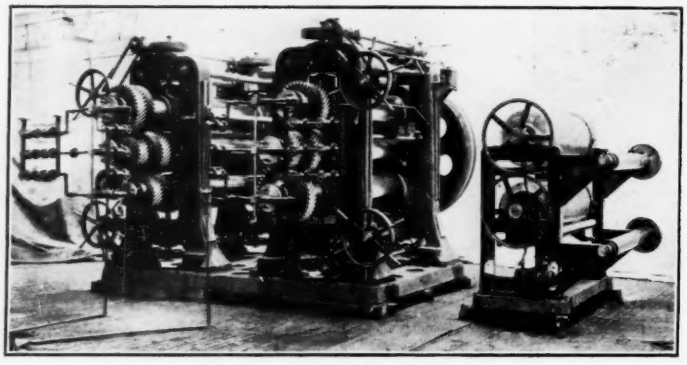
a stretching and slicing action which greatly facilitates cutting owing to greater reduction in side friction on the knives. The charging box top is open for charging the complete bale.

The cutter makes a complete cycle in one minute so that if material handling conditions, before and after cutting, are favorable, the production could be 50 to 60 bales per hour. When cutting soft rubber it is desirable to lower the pressure on the ram, which consequently slows down the speed of the cutter. Soft rubber has a tendency to "balloon" under high pressure and requires time to flow to relieve the wedging effect. The rubber is cut and extruded from the machine in wedge-shaped pieces that are easily fed between rolls or into the Banbury mixer. It is also quite easy to tear the pieces apart to make up batches of any desired weight. Farrel-Birmingham Co., Inc., Ansonia, Conn.

Tandem Calenders

A TANDEM calendering unit of German design and manufacture is here illustrated. In train with it is a cooling calender, pictured at the right of the hot-roll calender pair. The purpose of the cool-roll calender is suitably to reduce the temperature of the calendered stock to prevent it from adhering together when finally rolled up. The main calenders rest on a common foundation and are operated by the same regulating motor. The calenders are built with great precision and are equipped with Sykes gears.

This particular unit is used chiefly in rubber shoe plants for coating fabrics on both sides by a single passage through the machine. For this purpose its operation is highly advantageous over double coating with a 5- or 6-roll single calender. The motor can be regulated to control the output from slow speeds to a maximum of 44 yards per minute. Hermann Berstorff, Maschinenbau-Anstalt, G. m. b. H., Hannover, Germany.

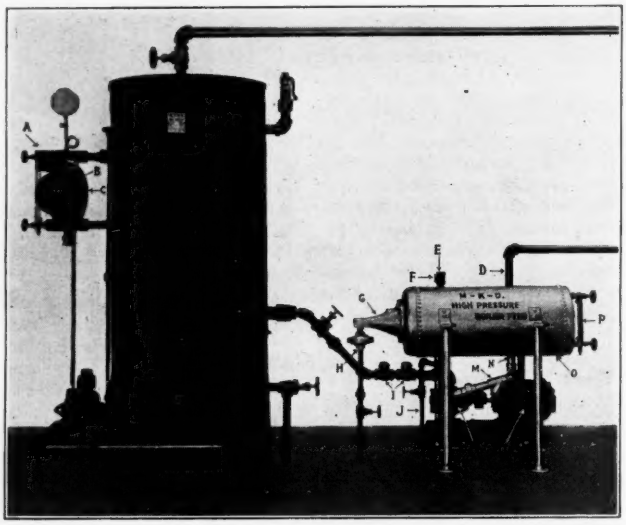


Berstorff's Two-Calender Unit

Automatic Boiler Feed

THE problem of feeding water to steam boilers automatically and economically when the steam pressure exceeds the water pressure, is solved by the apparatus represented in the illustration. It will not only pump feed water against high boiler pressure and feed it so as to maintain a constant water level, but it will also return condensation to the boiler and supply make-up water as well. No steam is used for the device, which insures a constant water level without fluctuating steam pressure.

The apparatus is pictured attached to a 10 h.p. gas boiler. An electric switch *A* and operating link *B* are mounted on a float chamber *C* attached to the steam boiler. The switch makes contact as the float falls with the water level, thus starting the motor *L* operating the turbine pump *K*. The pump feeds the water until the rising float *C* again throws the switch *A*, breaking the contact and stopping the motor. This control method permits holding the water level limits within ½-inch.



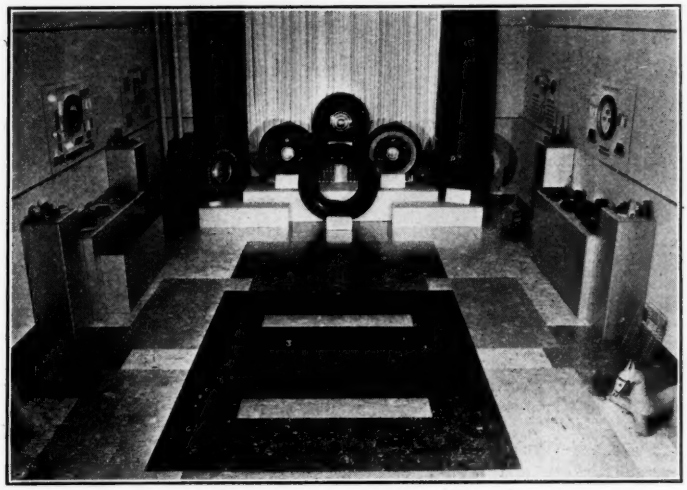
Automatic Boiler Feed Attached to Kane Gas Boiler

The pump draws its water supply from a receiver tank *O* vented to the atmosphere at *E* adjacent to an overflow connection *F*. All the condensation is dumped by ordinary steam traps into the tank. Make-up water, if required, is supplied by the float feed water regulator *G* built into the tank at one end.

Other items of construction lettered in the illustration are *D*, condensation return connection; *H*, city water connection; *I*, check valves; *J*, receiver tank drain; *M*, strainer; *N*, water supply to pump; *P*, water gage glass. Mears-Kane-Ofeldt, Inc., 1903-1915 E. Hagert St., Philadelphia, Pa.

Rubber Industry in America

OHIO



Goodrich Product Display Room for Visitors

Goodrich Activities

Visitors of The B. F. Goodrich Co., Akron, which last year numbered more than 56,000, will now be treated to a complete display room of company products, in the general offices. Thousands of rubber items are on exhibit, and a continuous motion picture showing of products in actual service is conducted.

President J. D. Tew addressed a conference of Goodrich district managers on August 15. At the meeting, in charge of S. B. Robertson, vice president, and C. B. O'Connor, general tire sales manager, were Frank E. Titus, sales manager of the Pacific division, Los Angeles, Calif.; F. A. Meurin, head of the southwestern division, Dallas, Tex.; H. B. Thackston, southeastern division, Atlanta, Ga.; R. McTammany, eastern division, Akron; and A. C. Kelly, western division, Akron.

Colonel D. M. Goodrich, chairman of the board, visited the Akron offices of the company last month.

W. S. Richardson, merchandising manager, mechanical division, announces the appointment of T. S. Rowe as product sales manager of a newly established department, floor coverings, mats, and matting.

The Goodrich organization held its annual Play Day on August 8 at Euclid Beach Park, Cleveland. Employment Manager A. C. Sprague headed the committee, which provided a thoroughly enjoyable and diversified program for the day's events.

Goodrich employes attended the National Air Races at Cleveland Airport en masse, August 28. Mr. Sprague was in charge of arrangements. Leading the company's workers were the Goodrich Silver Fleet of test cars and a police motorcycle escort.

Martha Mills, Goodrich textile division, Silvertown, Ga., notified its cotton shippers that from now until July 31, 1933, the company will pay for 7 pounds of additional cotton per bale at the current cotton price if the bales received are 100% cotton wrapped. The Goodrich mill uses approximately 73,000 bales of cotton annually to produce 30,000,000 pounds of Weftless Cord for Goodrich tires.

"The seriousness of the cotton situation at present has prompted this action," Albert T. Matthews, vice president and general manager, said. "Because of the large carryover and the present price which is below production cost we feel that it is necessary to promote the increased use of cotton, particularly as applied to the cotton industry."

The General Tire & Rubber Co., Akron, has announced the resignation of John G. Stoller as secretary and purchasing agent. In 1917 he became purchasing agent and in December, 1929, secretary of the General company, with which he had been since its organization in 1915. For 3 years prior to that time he was with William O'Neil and W. E. Fouse, now General president and vice president, respectively, in the Western Tire & Rubber Co., Kansas City, Mo. Mr. Stoller will join a private business enterprise with several other General officials. Mr. Fouse now assumes the duties also of secretary of the General company. Robert M. Graham, with the firm for many years, more recently as efficiency engineer, was appointed general purchasing agent. He has been with the rubber industry for the past 20 years, having been efficiency or production engineer with both The Goodyear Tire & Rubber Co. and The B. F. Goodrich Co.

The Tire & Rim Association's Akron and Cleveland members held their annual outing at Westwood Country Club, Cleveland, July 28. A golf tournament and yachting, followed by a dinner, made up the afternoon program. K. D. Smith, technical superintendent of The B. F. Goodrich Co. tire division, was chairman of the Akron committee on arrangements. C. E. Snyder and H. W. Delzell, of the Goodrich tire division, also attended the session.

One of the many public spaces of the new $10,000,000 *S. S. Manhattan*, where Goodyear rubber flooring adds its enduring beauty and comfort

The National Rubber Machinery Co., Akron, has perfected Model 11, an all steel, collapsible drum that is guaranteed against breakage.

R. H. Schwartz Rubber Corp., 3708 Payne Ave., Cleveland, makes tire flaps, mechanical rubber goods, and miscellaneous rubber accessories. R. H. Schwartz is president and treasurer; Wm. Weiss, vice president and secretary; and P. H. Bergener, purchasing agent.

The Mansfield Tire & Rubber Co., Mansfield, O., has resumed capacity production on a 24-hour schedule, and 100 additional men will be hired to increase monthly payrolls from $15,000 to $30,000. A daily production of 7,500 tires is planned.

Rubber Mfg. Co., Chelsea, Mich., moved to Carey, O., where a new company was formed, The Carey Rubber Products Co., which manufactures rubber stair treads and mats, sponge rubber products, and rubber specialties. Company officers are: E. L. McKimm, president; A. R. Brandt, vice president and purchasing agent; A. E. Donelson, secretary; and Grover Snyder, treasurer.

The Patterson Foundry & Machine Co., E. Liverpool, announced that E. M. Underwood, for the past 14 years sales engineer of Fairbanks, Morse & Co., has joined the Combustion Engineering Dept. of the Patterson company.

Birdsboro Steel Foundry & Machine Co., Birdsboro, Pa., now is represented in Akron and surrounding territories in the exclusive sale of hydraulic machinery by Hardin D. Thweatt, with offices in the First Central Trust Bldg., Akron. Mr. Thweatt formerly was with the Adamson Machine Co. and the Baldwin-Southwark Corp. as sales engineer.

Superflex Tire Corp., E. Palestine, according to I. L. Wiltsie purchased the National Tire & Rubber Co. plant, E. Palestine, which it is placing in operating condition with C. H. Moore as general superintendent.

The Surety Rubber Co., Carrollton, manufacturer of Surety gloves for every purpose and Surety safety equipment for utilities, reports an increase in sales for the first half of 1932 over the same period last year. Surety officers include S. S. Hall, president; J. B. Hall, secretary-treasurer; and A. C. McCartney, superintendent of plant.

L. E. Shunk Latex Products, Inc., 355 Morgan St., Akron, through President L. E. Shunk announces that it has been operating at full capacity since January 4, running 3, 8-hour shifts daily, 7 days a week. At present the firm is contemplating a 3-week shutdown for moving machinery and making general repairs. When the plant reopens, it expects a material increase in production and will take on a few more employes.

Seiberling Rubber Co., Seiberling Latex Products Co., and **Akron Reclaiming Co.,** all of Akron, and the **Kemitex Products Co.,** Wadsworth, held a combined annual picnic for their employes on August 8 at Summit Beach. Ralph E. Vanatta was general chairman.

MIDWEST

National Safety Council Rubber Section Meeting

National Safety Council, 20 N. Wacker Dr., Chicago, Ill., will hold its Twenty-first Annual Safety Congress and Exhibition at Washington, D. C., October 3 to 7. Because of the present economic situation the Rubber Section will crowd its program into a 2-day session. The meetings, therefore, will start promptly at 9:45 a.m., October 5, and 2:00 p.m., October 6.

Following is the final program to be held at the Wardman Park Hotel.

October 5

"Report of Year's Activities," Acting General Chairman J. R. Hanson.

"Trend of Accidents in the Rubber Industry," Roland Kastell, Chairman, Statistics Committee.

"Are We Making the Most of Our News-Letter?" Charles F. Smith, News-Letter Editor.

"Safety as Applied to Conveyers." (Speaker to be announced.)

"Is Carbon Tetrachloride a Health Hazard as Used in the Rubber Industry?" Dr. J. Newton Shirley, Arrow Mutual Liability Insurance Co., Watertown, Mass.

Report of Nominating Committee and Election of Officers.

October 6

"Safety Kinks in the Rubber Industry," B. F. Gerpheide, Safety Director, The Goodyear Tire & Rubber Co., Akron, O.

Presentation of Rubber Section Safety Contest Awards. E. W. Beck, Supervisor of Safety, United States Rubber Co., New York, N. Y.

Accident Costs. (Round Table.) Discussion led by W. D. Stearns, Manager of Industrial Relations, United States Rubber Co., Passaic, N. J.

"Cooperation," Walter Schaefer, President, Casualty Underwriters Assn. of N. J., Newark, N. J.

"Court of Injury." Directed by H. W. Low, Safety Engineer, Miller Rubber Products Co., Akron, O.

Mid-West Rubber Products Corp., which was organized this Spring and took over the assets of the Bickett Rubber Products Corp., both of Anderson, Ind., manufactures mechanical rubber goods, molded rubber, stair treads, mats, extruded material, tubing and channel rubber, garden hose, sponge rubber, and hard rubber. Until quite recently the company had been operating 5½ days a week, employing 25-30 people; then production was cut to 8 hours daily, 5 days a week. The company, however, expects very soon to return to full-time operations with 50 employes. The firm, believing that business conditions are on the upward trend, looks forward to a large increase in the volume of its sales. Executives include F. T. Barber, president; W. F. Siegler, vice president and sales manager; B. F. Beeler, secretary and plant manager; and C. L. White, treasurer.

Keystone Rubber Co., Inc., 178 N. Wacker Dr., Chicago, Ill., according to Manager R. H. Geier, feels, in view of the improvement in the number of inquiries received, rather encouraged at the increasing size of regular customers' orders and looks forward to increased activity among varied industries, resulting in greater demand for all kinds of rubber goods.

Western Rubber Co., Goshen, Ind., manufacturer of rubber for the industries, has been doing a fair volume of business throughout the current depression and has had sufficient work to keep the plant going every day. The outlook for increased business this fall is beginning to manifest itself in new items. At present the mold shop is working overtime. Officers of the Western Rubber Co. follow: Geo. B. Slate, president; Ray Deahl, vice president; M. M. Latta, secretary-treasurer; E. W. Bonnett, plant superintendent; W. T. Statler, manager of sales, Eastern Division; W. C. Latta, manager of sales, Western Division.

Ahlbell Battery Container Corp., Waukegan, Ill., recently installed stokers and a boiler feed system to its boilers. The company also put in a water cooling system, enabling it to use water repeatedly at a great saving on its water bill. To add considerably to the appearance and the strength of its hard rubber battery containers Ahlbell has reenforced them. The company believes that business is now on the upturn and reports that its business is about 35% in excess of that for the same period last year. This gain applies to units sold and to sales increase. Ahlbell executives include: E. L. Byfield, president; A. H. Byfield, vice president; J. L. Hunter, secretary-treasurer and general manager; R. C. Arndt, office and credit manager; J. N. Wall, general superintendent; V. H. Roberts, general foreman; and James Zacks, mechanical engineer.

The Falk Corp., Milwaukee, Wis., appointed L. A. Graham and M. A. Carpenter sales manager and sales promotion manager respectively for all its commercial products. Foundry sales remain under Vice President A. Simonson. Mr. Graham had been vice president of Low-Graham-Wallis Co., Inc., Chicago, technical advertising agency, and sales manager of Garford Truck Co., Lima, O. Most recently he has done consulting sales work for Falk and other engineering manufacturers in Milwaukee. Mr. Carpenter for a number of years headed all Falk advertising activities and the sale of certain Falk products. He now assumes charge of a newly organized Sales Promotion Dept. to coordinate all selling and advertising activities of the corporation. Falk manufactures gears, speed reducers, couplings, marine and steel mill drives, other power transmission specialties, and steel castings. Several new products have been added, and plans for an aggressive selling and advertising campaign are under way.

NEW JERSEY

Machinery Engineer

Born of a family devoted to machinery, Vernon E. Royle is ever capably carrying on its traditions, as vice president and secretary of the company founded by his grandfather in 1860 and now known as John Royle & Sons, Inc., Paterson, N. J., manufacturer of machinery for the rubber industry as well as for several other trades.

Mr. Royle first saw the light of day on July 10, 1877, at Paterson, the birthplace also of his father, Vernon Royle, venerable president of the company. Mrs. Royle, who died in 1908, was a native of Glasgow, Scotland. Their other son, Heber, 2 years older than Vernon E., passed away in 1925 while acting as secretary and treasurer of his father's company.

Vernon E. Royle attended the local public schools, graduating from high in 1895. During his leisure the boy worked in the Royle factory and was a skilled machine hand by the time he entered the Stevens Institute of Technology, Hoboken, N. J., from which he was graduated in 1902, an M.E.

Mr. Royle then took active charge of the company's engineering and drafting work. He inaugurated many successful changes, the result of modern industrial laboratory methods. The firm, with its modernized machinery and scientific formulae and processes, produced even finer machinery than ever before, winning an enviable reputation in its field—all largely due to Mr. Royle's efficient management. As chief engineer of the organization he is also constantly engaged in patent developments.

When his uncle, John Royle, Jr., who had been works superintendent, died, Vernon E. Royle was given the position. He obtained his present post after his brother's death in 1925.

Mr. Royle is a director of the Paterson Savings Institution and Citizens Trust Co., and was formerly a director of Paterson Orphan Asylum, and Paterson Vocational School. He belongs to the American Society of Mechanical Engineers, the American Society for Testing Materials, the Alumni Association of Stevens Institute of Technology, the American Society for Steel Treating, the North Jersey Country Club, the Rotary Club, Knight Templars, and Shriners. In politics he usually favors the Republican party. Golf is his favorite sport.

In 1908 Miss Viola K. Graham and Mr. Royle were married, but she died 8 years later. In 1918 Mr. Royle took as his bride Miss Norma Huntington. They live at 399 Fifteenth Ave., Paterson.

Little change occurred in the rubber industry in New Jersey during the past month; and while certain firms report a slight increase in business, others find conditions about the same. Some improvement took place in hard rubber production; and tire and tube orders increased. A decline in the output of mechanical rubber goods and bathing goods is noticed.

J. G. Gessford

Vernon E. Royle

Mr. and Mrs. Theodore S. Cart, of Princeton, sailed for an extensive tour of Europe. Mr. Cart, formerly president of the Pocono Rubber Cloth Co., is now president of the Atlantic Products Corp., both of Trenton.

F. Robert Lee, vice president of the Thermoid Company, Trenton, has been on a lengthy business trip through the midwest. The company reports fairly good business at its plant and at the Woven Steel Hose & Rubber Co., its subsidiary.

Murray Rubber Co., Trenton, enjoys increased business with the plant running normally.

Pocono Rubber Cloth Co., Trenton, continues with a full day shift in filling orders for auto top and raincoat material.

Essex Rubber Co. and **Home Rubber Co.** have leased large spaces at the coming Trenton State Fair. President Charles E. Stokes, of the Home company, and Mrs. Stokes have gone to Spring Lake for several weeks.

Foreign Trade Circulars

Special circulars containing foreign rubber trade information are now being published by the Rubber Division, Bureau of Foreign and Domestic Commerce, Washington, D. C.

No.	Special Circulars
3312	Crude rubber reexports from the United States, June, 1932.
3314	Crude rubber reexports from the United States, first 6 months, 1932.
3316	Canadian tire exports, June, 1932.
3317	Canadian tire exports, first half of 1932.
3318	Canadian footwear exports, first half of 1932.
3319	Canadian belting and hose exports, first half of 1932.
3320	British footwear exports, June, 1932.
3321	British footwear exports, first 6 months of 1932.
3322	British automobile casing exports, June and first half of 1932.

Committee D-13, A.S.T.M.

At the Thirty-fifth Annual Meeting of the American Society for Testing Materials held at Atlantic City, N. J., June 23, 1932, the following vice chairmen of Committee D-13 on Textile Materials were elected: B. H. Foster, manager, United States Rubber Co., Textile Section, Passaic, N. J.; J. M. Weaver, sales engineer, General Asbestos & Rubber Division of Raybestos-Manhattan, Inc., N. Charleston, S. C.

Joseph Stokes Rubber Co., Trenton, announced that business improved a little at both the Trenton and Canadian plants. President William J. B. Stokes is spending several weeks at "Skytop" in the Pocono Mountains.

Puritan Rubber Co., Trenton, is experiencing increasing business with good prospects for the Fall.

The Sterling Corp. tire plant, E. Rutherford, closed for 2 years, is being remodeled and rebuilt. Reports indicate that tire manufacturing will be resumed, but by Akron interests.

Mercer Rubber Co., Hamilton Square, finds business a little quiet at present.

Pierce-Roberts Rubber Co., Trenton, is receiving increasing orders.

Superior Hard Rubber Co., Butler, manufactures hard rubber specialties such as druggists' sundries, novelties, smokers' articles, radio and magneto parts, and moldings for electrical purposes. Company trade names include Superior Safety Point, Syringe-Spiral-Spray, S.H.R. Co., and Super-Insulated. Executives are I. Q. Gurnee, president and treasurer; E. N. Zerbe and E. C. Gurnee, vice presidents; H. G. Kopp, treasurer; and I. Q. Gurnee and Warren Hopper, purchasing agents. The New York, N. Y., sales office, Nichols Nasal Syphon, Inc., is at 159 E. 34th St.

St. Mungo Mfg. Co. of America, 121-23 Sylvan Ave., Newark, manufacturer of golf balls, according to Vice President and Treasurer W. W. Mills does not find the outlook for fall business favorable. The company believes that general business conditions this year, in themselves, would have seriously affected the golf ball industry, but what seems to have made matters worse and upset the whole industry is the fact that some manufacturers dumped their stocks on the market at very low prices to the trade who, in turn, sold to golfers at small increases; and this condition has made it impossible to sell golf balls at anywhere near the prices that were considered fair up to 1932. Until manufacturers decide to resume business methods used prior to this year St. Mungo cannot look for a favorable turn in its field. Other company officers are President J. I. Jolly and Secretary R. B. Jolly. The company acts also as selling agent for the Crawford, McGregor & Canby Co. and maintains branches in 7 leading cities of the country.

EASTERN AND SOUTHERN

Pennsylvania Rubber Co., Jeannette, Pa., according to President W. O. Rutherford, soon will increase prices on tires and tubes to include the federal tire tax amounting to about 12% which it has been absorbing. Mr. Rutherford believes the rubber industry as a whole should take this step because the absorption of the tax not only is retarding the industry's recovery, but is aggravating competitive conditions among both manufacturers and retailers.

"It is time for the rubber industry to go 'long' on America," he said. "Public interest is focused on one thing, and that only—industrial rehabilitation. It wishes us to place our businesses on a sound basis. It looks to us to take measures that will give it renewed confidence in our securities. It expects us to make such moves as will enable us to increase the employment of labor."

For the first 5 months of 1932 this concern reported a 38% increase in tire sales over the same period last year. In June the company produced and sold more tires, tubes, and tennis balls than in any other single month of its 33-year existence. For 1931 Pennsylvania made handsome net profits and very substantial sales gains.

The National Association of Waste Material Dealers, Times Bldg., New York, N. Y., recently completed a wire canvass of key concerns in the waste material industry from Boston to San Francisco, and the result indicates that the depression is on the way out. Price advances run as high as 100% in some instances.

National Erie Corp., Erie, Pa., manufacturer of a complete line of rubber machinery, recently shipped 6 hydraulic platen presses to an Ohio rubber manufacturer. J. G. Osborne reports that the company, operating 6 days a week, is enjoying good business on all its steel hydraulic platen presses, tubers, and strainers. Through its gear cutting department the concern has worked up a good volume of replacement business on cut gears and machined castings.

Roy Dikeman Chapin on August 8 formally became Secretary of Commerce of the United States, succeeding Robert P. Lamont, resigned.

United States Rubber Co., 1790 Broadway, New York, N. Y., is consolidating its various sales divisions at the New York office, a move forecast in May when Joseph F. O'Shaughnessy was made general sales manager in charge of sales of all U. S. products. The footwear sales department has been transferred from Naugatuck, Conn., and the mechanical goods sales department from Passaic, N. J. The tire sales division will be moved from Detroit, Mich., about September 1. Eventually almost all the sales divisions of the company, now scattered throughout the country in the various factories of the U. S. organization, will be centered in New York.

THE RUBBER MANUFACTURERS ASSOCIATION
INCORPORATED 1915
RMA
All Rubber and Canvas Footwear in this store was made in the U.S.A. by American workmen. Insist on products marked "MADE IN U.S.A."

Poster in R. M. A. Footwear Campaign

Foreign Footwear Competition

For over a year domestic manufacturers of canvas and rubber footwear have encountered very keen competition in this market from importations of Japanese and Czechoslovakian manufactured goods, which have been and continue to be offered for sale at very low prices, and in some cases, as with certain Japanese tennis shoes, below domestic cost of production.

Besides requesting an investigation of this situation by the Tariff Commission, footwear manufacturers through the Footwear Division of The Rubber Manufacturers Association, Inc., are also asking the assistance of footwear dealers throughout the United States, urging them to consider American manufactured products first, through a letter that, on the reverse side, contains a window display, as shown in the illustration, which it is hoped will be prominently exhibited in more than 100,000 dealers' stores.

Premier Mill Corp., manufacturer of machinery including colloid mills and Premek colloidal materials for latex compounding, maintains a factory at 25 Canal St. and principal office at 218 Genesee St., both in Geneva, N. Y. Company executives are B. M. Nester, president; M. J. Nester, vice president; and S. K. Nester, secretary-treasurer.

International Latex Corp., 105 Crouch St., Rochester, N. Y., manufactures the original water-cured liquid latex products under the registered trade mark "Texide." The export department of the company is at 261 Fifth Ave., New York, N. Y. Company executives include A. N. Spanel, president; Max Woythaler and L. E. Pleninger, vice presidents; Henry Hays, secretary; and Geo. L. Follette, purchasing agent.

Westinghouse Electric & Mfg. Co., E. Pittsburgh, Pa., through Vice President and General Manager J. S. Tritle has announced the appointment of E. C. Brandt, formerly assistant works manager, as manager of renewal parts in all Westinghouse plants.

Lycoming Rubber Co., Williamsport, Pa., according to current reports, will close indefinitely about September 1 and its business be transferred to the United States Rubber Co.'s footwear factory, Naugatuck, Conn.

The Tenth National Exposition of Power and Mechanical Engineering will be held at Grand Central Palace, New York, N. Y., December 5-10. As 2 years have passed since the last exhibit was held, many new developments are expected to be featured. Already 305 firms have contracted for display space.

Heel Factory in Colombia

The manufacture of rubber heels and rubber soled canvas footwear has been established in Medellin, Colombia. The output of the new factory will be 1,500 dozen pairs of heels. Tennis and sneakers will also be manufactured. Rubber Division, Department of Commerce, Washington, D. C.

INTERESTING LETTERS

Not Involved in Hard Rubber Dust Duty

To the Editor: Treasury Decision No. 45,706 holds that hard rubber dust be assessed with duty, 30 days after the publication of the decision, at 35% ad valorem.

It has been brought to our attention that importers of this product advised consumers that we were instrumental in having this duty assessed. Knowing that we were not in any way involved, we applied to the Commissioner of Customs of the Treasury Department to inform us of the name of the complainant and to exonerate us in this regard.

We are pleased to inform you that we received from the Commissioner of Customs a letter containing the following:

"Referring to your request for the name of the company which brought this matter to the attention of the Bureau, I have to advice you that a number of firms presented this question for consideration but that your firm was not one to present the matter nor were you, so far as the Bureau is aware, directly or indirectly interested in bringing the matter to the attention of the Bureau."

From the above you can see that the information conveyed by the importers is entirely without grounds.

Somerset Rubber
Reclaiming Works
New Brunswick, N. J.
August 1, 1932.

OBITUARY

Our Pacific Coast Representative

PHILIP A. McAVINEY, Pacific Coast representative and associate editor of INDIA RUBBER WORLD, died of heart disease on August 6 at his home in Hollywood, Calif. Mr. McAviney was born in Harrison, N. J., 65 years ago. As quite a young man he went into daily newspaper work and as reporter, feature writer, and editor became conversant with every department in that field. He later purchased the *Kearney Record*, which he successfully published in Newark, N. J., for a number of years. In 1918 he sold his paper, moved to California, and accepted a position on the editorial staff of the *Los Angeles Times*. Two years later he resigned and associated himself with INDIA RUBBER WORLD with which publication he continued until the day of his death.

Mr. McAviney was an excellent chemist, a good botanist, and during the 12 years on INDIA RUBBER WORLD became an authority on rubber matters in general. He was a fine linguist, proficient in French, Spanish, Italian, and Portuguese. He had a flair for literary research which was reflected in his forceful and pure style. He had hosts of friends and was known and respected by the entire rubber trade on the Pacific Coast.

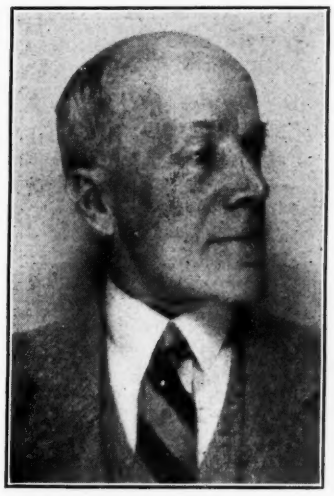
The funeral services, which were private, were held at St. Charles Church, Hollywood, the interment being at Calvary Cemetery. Mr. McAviney is survived by his widow, the former Mary Foley, a sister of that noted ecclesiastic, the late Mgr. William Foley of Halifax, N. S.; 2 brothers, and 4 sisters.

President of Littlejohn & Co., Inc.

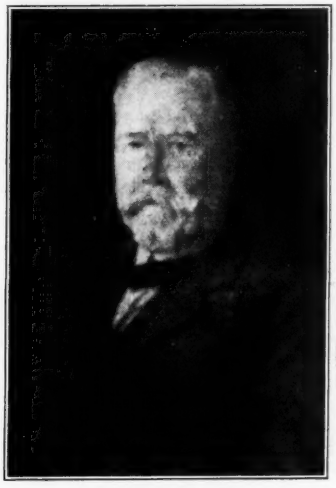
LOMAX LITTLEJOHN, who died at his home in Flushing, L. I., July 10, 1932, aged 91 years, was born in Liverpool, England, October 14, 1841. He came to this country at the age of 10, with his parents who resided in Brooklyn until 1861 when they moved to Hastings-on-the-Hudson, N. Y., and subsequently to Flushing.

In 1857, at the age of 16, Mr. Littlejohn entered the employ of his father in the iron and steel business, and in 1872 with his brother-in-law, James R. Townsend, he formed the copartnership of James R. Townsend & Co., importer of East India products. In 1893 the company was dissolved and for about 4 years Mr. Littlejohn continued the business in his own name; subsequently with Frederick Parsons and his son, Robert M. Littlejohn, he formed the partnership of Littlejohn & Parsons. Mr. Parsons retired from the firm in 1904. The copartnership was continued by Lomax and Robert M. Littlejohn.

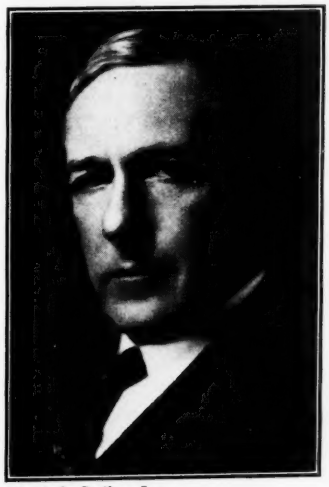
In 1909 the copartnership of Littlejohn & Co. was formed, William E. Bruyn being admitted as a general partner. At this time the firm engaged in importing crude rubber, and was incorporated several years later as Littlejohn & Co., Inc.



Philip A. McAviney



Lomax Littlejohn



Blank & Stoller, Inc.
Clifford H. Oakley

Mr. Littlejohn was active in the business administration of his corporation until 1929 when he retired from active participation in the business, but continued as president of the corporation, which office he still held at the time of his death.

Prior to entering actively into the importation of crude rubber the firm of Littlejohn & Co. was a large importer of spices and gums. Mr. Littlejohn was president of the American Spice Trade Association for 4 terms, and chairman of its Arbitration Committee for 10 years.

Mr. Littlejohn was a member of the Graduating Class of '57, Polytechnic Institute of Brooklyn, the first graduating class. He was the oldest living graduate.

Essex Rubber Co.'s President

CLIFFORD H. OAKLEY, president of the Essex Rubber Co., Trenton, N. J., died August 9 at a Philadelphia hospital following an illness of 10 months.

Mr. Oakley was born in Cleveland, O., in October, 1869, and was educated in the grammar and technical schools of that city and Ashtabula, O. He became a mechanical draftsman in the motive power department of the Erie Railroad in 1887 and was promoted the same year to junior engineer in the maintenance of way department.

Working for a railroad, however, did not hold the same lure as did the rubber manufacturing business, so he became a mechanical draftsman for the Cleveland Rubber Co., advancing to the post of superintendent. Subsequently he worked for the New York Belting and Packing Co., Passaic, N. J., and after returning to Cleveland took up the position of general superintendent of the Cleveland Rubber Co. Next the Grieb Rubber Co., Trenton, claimed his services as general manager from 1900 to 1907. During that time he was instrumental in consolidating the Ajax Rubber Co. and the Grieb firm.

Manufacturing on his own account next attracted Mr. Oakley, so in 1907 with his brother, Lawrence, he founded the Essex Rubber Co. From modest beginning the business of making insulating material, brake linings, packings, auto accessories, and numerous specialties has grown during the last quarter of a century to large proportions.

Keenly interested in community welfare Mr. Oakley was one of the most active members of the Trenton Chamber of Commerce. He also was affiliated with the Rotary Club, a director of the New Jersey Manufacturers Association, and a long time member of the American Society of Mechanical Engineers. He also was a Shriner and commodore of the Trenton Sea Scouts.

He is survived by his widow, a son, a daughter, a sister, and 2 brothers.

The funeral was held from his late home, 932 Riverside Ave., with burial in Riverview Cemetery, Trenton.

PACIFIC COAST

The C. P. Hall Co. of California, 1340 E. Sixth St., Los Angeles, Calif., subsidiary of The C. P. Hall Co., Akron, O., chemical manufacturer, has had appointed to it by President C. P. Hall as its new general manager, R. D. Abbott. After his graduation from Cornell University in 1917, a Bachelor of Chemistry, he joined the Miller Rubber Co., Akron, as a chemist, but left to enlist in the naval air service. Upon his discharge he returned to Miller as compounder and later was made manager of the tire development department. When Goodrich absorbed Miller, Mr. Abbott became manager of the Goodrich Silvertown store, Long Beach, Calif.

Royal Auto Products Co., 2106 Walter St., Huntington Pk., Calif., manufactures Royal tire boots and patches and Royal Ever-Wear floor mats made of used auto tires. These mats have enjoyed large sales in the 3½ years of the company's existence, covering the United States, Australia, Hawaiian Islands, China, Japan, and New Zealand. The company finds the general business outlook very promising, for dealers' stocks are very low and many future orders are being received for early fall delivery. E. F. McClung is owner and general manager, and M. Konz, sales manager.

Griffith Rubber Mills, 22nd and Nicolai Sts., Portland, Ore., manufacturer of rubber covered rolls and mechanical rubber goods, since the recent death of its president, Charles R. Griffith, has formed the following personnel: Franklin T. Griffith, president and treasurer; L. P. Griffith, secretary; Z. A. Wise, manager; and U. A. Keppinger, assistant manager. The late Mr. Griffith's patent porous top press roll for paper making has been licensed to the United States Rubber Co., and his Grippo Cork-Fibre non-slip pulley to Rodney-Hunt Machine Co., Orange, Mass. During the depression in paper making the Griffith firm has taken on the exclusive right to manufacture mechanical rubber goods for the United Sales Corp., which has headquarters in Portland and branches throughout the West and now rapidly extending eastward. Griffith Rubber Mills continues to recover all paper mill rolls on the Pacific slope and British Columbia.

Darnell Corp., Ltd., Long Branch, Calif., through R. W. Longfield, reports that this is the season when the company pushes the school trade, especially on its rubber cushion noiseless glides and rubber wheel piano casters. Darnell has recently put out a new series of rubber tired casters, known as E-Z-Turn, for household use. They are of patented construction that permits lower production costs. The company has also installed new equipment for faster production and more accurate control. Business is improving; so Darnell anticipates a decided increase by midwinter.

Rubbercraft Corp. of California, Ltd., 110-114 E. 17th St., Los Angeles, Calif., according to President Charles N. Merralls, has a new plant manager, James W. Stull, in charge of all production for the company. In addition to sponge rubber sheets in various sizes Rubbercraft makes sponge rubber crash pads for instrument boards of government airplanes. The company continues to enjoy increased sales of its Oso-Soft pneumatic air cushions, of which a new style has been designed for pilots to be worn on parachute packs for long distance flights. Mr. Merralls furthermore states that the Pacific Coast is looking to a future better and bigger business.

R. D. Abbott

James W. Stull

The Armstrong Rubber Co., W. New Haven, Conn., manufacturer of tires and tubes, took on 100 new employes last month and has been operating with day and night shifts.

NEW ENGLAND

S. W. Lovejoy, office manager of the Hood Rubber Co., Watertown, Mass., advocates the plan now used successfully in both the Hood plant and offices to return to work, without increasing production or its cost, approximately 10% of those now unemployed. To accomplish this objective wages of new employes are met by contributions from wage earners and salaried executives in a graduated scale from 2 to 5% according to yearly income, and from the stockholders if the company pays a dividend. By shortening the hours of present employes, no stepping up in production takes place. The whole expense is borne by employes, compensated by shorter hours.

Goodyear Rubber Co., Middletown, Mass., manufacturer of Gold Seal rubbers, through Treasurer C. M. Park reports a much better tone to business than experienced for some time and thinks the rubber industry for the fall will be on an improved basis. The company is increasing the efficiency of its plant very materially and also its personnel in contemplation of very much increased business.

Simplex Wire & Cable Co., 79 Sidney St., Cambridge A, Boston, Mass., recently brought out 2 new products, Latox insulation and Performite insulation.

Globe Rubber Works, Inc., 45 High St., Boston, Mass., manufacturer of hose, packings, mats and matting, gaskets, tubings, sponge rubber, etc., in view of the increased activity in the mill trade feels hopeful that the turn of business has come; so is keeping all 5 of its outside salesmen soliciting business throughout their various territories. The company has retained all its employes during the depression and without cutting working hours. Winfield S. Knowles, president of the company since it began 42 years ago, has been away for the past 2 years because of ill health.

L. C. Chase & Co., Inc., 295 Fifth Ave., New York, N. Y., at a meeting last month in Sanford, Me., elected as president W. H. Marland, president of Sanford Mills, of which the Chase company is a subsidiary; as general manager, George B. Ogan, formerly resident partner of the Chase company in Chicago, Ill.; as treasurer, W. N. Campbell, president of the Goodall Worsted Co.; and as clerk, W. O. Emery. The board of directors consists of these officers and Fred C. Hopewell, president of the Reading Rubber Mfg. Co., and Geo. K. Ripley, president of Troy Mills. The Chase organization acts as selling agent for the Sanford and the Troy mills and the Reading Rubber Co.

The Converse Rubber Co., Malden, Mass., has hired 250 more men than usually employed this time of the year. Immediately after the annual vacation period, when the whole plant shut down, the company began operations with a crew of 650. Although the business fluctuates, the officials had so many advance orders on hand that they were able to hire the additional force.

Rubber Industry in Europe

GREAT BRITAIN

Wool-Rubber Yarns

The selection and dyeing of thread for covering rubber cores for surgical goods has improved considerably of late. Where the outer covering is of silk or rayon, surgical stockings are dyed in the fashionable hosiery shades and can be worn under the ordinary stocking without detection. However, says W. Davis, in the *Wool Record*, there is scope for experiment in obtaining the proper types of woolen covering yarns for woolen garments. At present rubber threads covered with a wool yarn are too bulky; and the use of cotton-covered thread in a woolen garment is not satisfactory because where the woolen material is piece dyed, the cotton seldom takes on the dye of the wool so that the threads, showing through white or stained, make the goods appear cheap.

For ordinary articles of hosiery, the rubber thread gets 2 undercoverings: as first covering, 2 threads of cotton with right wrapping, and as second, 2 threads of the same count wrapped in the opposite direction. During this operation the rubber is stretched ⅓ to ½ its original length, and care is taken to wrap the core so closely that it is held permanently in its stretched condition. Then comes the outer covering of several threads of rayon.

When a wool yarn is used, a single 50's worsted is employed in the same way, that is, the rubber is covered twice in opposite directions. This double wrapping insures that when the finished article is stretched, no naked rubber is exposed.

Before it can be used, the rubber thread is tested for strength and quality. Stretch is gaged on the basis of 228 lbs. per sq. in., and the weight employed is calculated on the cross-section of yarn. The test pieces are 6 in. long and in general are required to stretch at least 3 times the original length.

Revised Railway Rates

As a result of negotiations between the Rubber Trades Transport Committee and representatives of the railway companies, a recommendation is being made to the Railway Rates Tribunal for reducing the classification of giant pneumatic tires fitted to wheels, tires returned for reconditioning, and waste rubber. This reduction, if approved, will greatly benefit rubber manufacturers in general and those producing giant pneumatics in particular since much is still to be done in converting vehicles from solid to giant pneumatic tires.

The application for reduction had been made by the India Rubber Manufacturers' Association which also requested a reduction for rubber shoes and raw rubber. The decision was against a lower classification on rubber shoes, but that for raw rubber is still under consideration.

New Products

Ottolino is a new rubber paving material obtained by treating latex so as to render it capable of being mixed with waste rubber and certain minerals. The mixture can be pressed into sheets, blocks, etc., or spread right on the spot where needed, vulcanizing automatically. It is said that the method of manufacture is simple and does not require heavy expensive machinery for mixing and molding. Test pieces have already been laid in 3 different places, and rumors say that a company will be formed to market the material.

Robac P. T. M. (dipentamethylene thiuram monosulphide) is a new ultra-accelerator. It is claimed to be both a low-temperature and high-temperature accelerator, of unusually wide applicability, non-discoloring, and safe.

The advantages of a new Dunlop pneumatic tire for farm vehicles on heavy land were recently demonstrated on a farm at Ft. Dunlop. In a comparative test it was shown that when a horse-drawn cart was equipped with pneumatic tires, the horse could take twice the load that was possible with iron tires, that the animal could do so more quickly and could get over difficult ground more easily. For greater efficiency it is suggested that carts to be fitted with pneumatic tires should be built on lower axles than at present.

Company Notes

The Goodyear Tire & Rubber Co. (Great Britain) announces a profit of £161,602 in 1931 against £175,137 the year before. After writing off interest on debenture stock, reserve for rubber commitments, etc., the net profits were £67,600 against £122,597. A 10% dividend was distributed in June, 1931, and in December another 10% out of accumulated profits since 1929 so that the average dividend works out at 10% yearly for 1929, 1930, and 1931.

The India Rubber Journal learns that the Dunlop Rubber Co., Ltd., plans to increase its building space and to install an additional plant at its rubber footwear factory in Rice La., Walton, Liverpool. It appears that estimates are being considered for increasing the present capacity of 30,000 pairs daily by another 7,000-8,000 pairs a day.

Dubied & Cie., S. A., manufacturer of automobile tire valves with headquarters at Neuchatel, Switzerland, and works at Couvet, Switzerland, Pontarlier, France, and Milan, Italy, is erecting a large factory in Birmingham to serve the British market, and will employ about 300 workers.

The Yellow Peril

Under this head the London *Rubber Age* discussed in rather pessimistic vein the inroads that Japan has made in the rubber footwear market and the progress that China is making industrially. Data are quoted to show the development of Chinese enterprise in the rubber footwear industry, and it is suggested that from supplying her own needs, China may well proceed like Japan to build up an export trade. Now not even a Japanese, who can undersell everyone else in the world, can compete with a Chinaman; so if the industrial awakening in China has come to stay, it can only be a question of time before all outside competition is excluded. The West thus faces not only the loss of the markets in the Far East, but the potential ability of the Orient to flood western markets with its products manufactured at record low prices.

Poland

The Dunlop Rubber Co., A.G., Warsaw, capitalized at 2,000,000 zloti, closed its balance for 1931 with a loss of 451,387 zloti.

Denmark

Although the number of motor vehicles in Denmark increased in 1931, the number of tires sold declined from 170,000 in 1930 to 135,000. The United States, Germany, and France all suffered set-backs in shipments to Denmark, but Sweden, Italy, and especially Canada made some gains

Austria

Semperit Oesterreichisch-Amerikanische Gummiwerke A. G., Vienna, closed its 1931 accounts with net profits of only 179,084 s. on a share capital of 16,000,000 s. This amount was carried forward, and for the first time since 1906 the firm passed a dividend. To cut overhead as much as possible the company will concentrate its factories in Austria as rapidly as possible. Thus the Gummi & Kabelindustrie Josef Reithoffer's Sohne A.G., Steyr, is to be closed, and the works leased from the Asbest & Gummi-Werke Calmon, G. m. b. H., Vienna-Stadlau, are to be vacated.

As a result, manufacturing in Austria by this firm will now be concentrated in the factories in Traiskirchen and in those of the Vereinigte Gummiwaren-Fabriken, Wimpassing vormals Menier-J. N. Reithoffer. Certain departments are reported to be well occupied, but prices, particularly for goods for export, are very unfavorable.

GERMANY

Making Hot Water Bottles without Molds

Instead of using molds when vulcanizing rubber cushions and hot water bottles, the Degufrah Deutsche Gummiwaren-Fabrik, Berlin-Weissensee, will use a 2-piece collapsible frame. A hot water bottle, for instance, is stamped from 2 sheets of rubber so that the edges of the stamped article are joined together. Then, before curing, the collapsible frame of the required shape is inserted into the opening of the bottle and extended so that it supports the edges of the article. Vulcanization next proceeds in the usual way, but without molds.

German Cable Industry

The German cable and wire industry is now experiencing a difficult period according to recent reports. Domestic demand is limited because of the need of economy in many departments using these goods. Exports, on the other hand, have been steadily declining in price and quantity. Thus cable exports, which had been 2,500 tons in January, 1932, fell to 1,700 tons in February, 1,600 tons in April, and 1,480 tons in May. Russia, which had imported large quantities toward the end of 1931 and the beginning of this year, has greatly curtailed its purchases from Germany. However, Holland, Sweden, and Argentina, as usual, continue to import certain amounts regularly.

Imports and Exports

Germany imported 229,906 quintals of crude rubber during the first half of 1932 against 233,029 the year before. However, since reexports were 10,606 against 24,177 quintals, the total absorption in the first 6 months of 1932 was 219,300 against 208,852 quintals in 1931. At the same time exports of rubber goods were 73,060 quintals, value 29,186,000 marks, against 96,015 quintals, value of 45,288,000 marks; while imports of rubber goods were 11,435 quintals, value 4,610,000 marks, against 27,461 quintals, value 13,011,000 marks.

Company News

The Asbest & Gummiwerke Alfred Calmon A. G., Hamburg, reports a loss of 136,336 marks for 1931. The capital will be reduced from 2,454,000 to 2,325,000 marks.

Franz Clouth Rheinische Gummiwarenfabrik A. G., Koln-Nippes, booked a loss of 530,000 marks in 1931 against a loss of 200,000 marks in 1930. To cover this loss the capital of 3,060,000 marks will be decreased to 2,250,000 marks.

Land & Seekabelwerke A. G. shows a loss of 87,711 marks for 1931, against a profit of 230,260 marks the year before when a 7% dividend was declared. In 1931, sales declined about 37% in quantity and 42% in value as compared with the preceding year. The outlook for the current year is not favorable.

Deutsche Kautschuk Gesellschaft

Because of the present unfavorable economic situation the directors of the Deutsche Kautschuk Gesellschaft have unanimously decided against holding the general meeting in 1933, as first planned, provided members agree. At the last gathering the organization decided to convene again in 1933 at Cologne at the time the Achema VII is to take place and the Society of German Chemists is to hold its annual meeting. It had been planned to have a permanent rubber exhibition in Cologne where the newest machinery and factory installations and the manufacture of all kinds of rubber articles, from latex to finished goods, were to be demonstrated.

New Processes

In a new method of making rubber hose with seamless fabric inserts the warp does not run parallel to the axis of the hose, but spirally or zig-zag. This condition is effected by turning the hose on the core during weaving; the turning movement may be uniform so as to produce a spiral twist or may proceed toward the left for a time and then for an equal period toward the right to produce a curved, zigzag effect. This twisting process is said to give the hose with circular woven insert qualities superior to those with bias cut fabric inserts. For one thing the outer layer of a bent hose with the new type of insert continues to be yielding because of the twist in the fabric.

The Franz Clouth Rheinische Gummiwarenfabrik A.G., has found a simple and inexpensive method of producing a high-grade foam rubber. This consists in allowing carbon dioxide to act at normal temperature and under a pressure of 50 atmospheres on unvulcanized rubber or rubber mixes. There is no addition of any of the substances usually employed for expanding rubber. The carbon dioxide penetrates the rubber mass completely within about one hour, particularly when the rubber sheet is thin. On the other hand the rubber gives off the carbon dioxide very slowly so that the expanded mixing can be taken out of the compressor, shaped, and vulcanized, or vulcanization may take place in the compressor itself by introducing steam.

A patent covering elastic factice masses has just been published in which the product is improved by combining it with a thin sheet of soft vulcanized rubber. The process is as follows: 340 gr. chloride of sulphur are thoroughly stirred into 800 gr. of linseed oil and at the same time 2,700 gr. ground quartz are added. The whole, while still in a liquid state, is poured to form a sheet about 8 mm. thick into a mold having at the bottom a sheet of soft vulcanized rubber 2 mm. thick. The factice formation is completed in the mold, and during the process it unites completely with the soft rubber. Sheets so made, claimed as durable as those entirely of rubber, can be permanently fixed anywhere.

France

For the year ended February, 1932, Etablissements Hutchinson reports net profits of 13,070,972, fr., to which is added a carry-forward of 4,206,772 fr. The dividend on class A shares was 90 fr.

Société Le Filastic, with headquarters at Paris, has been formed to manufacture and sell impregnated fabrics in general and Filastic products in particular. The capital is 7,500,000 fr., in shares of 1,000 fr. each. The first board of directors includes Sylvain Lejeune, Jean Charles Bongrand, Raoul de Lubersac, Alexandre Bungener, Antoine Gilly, Henri de Boisgelin, and Robert Bienaime.

Recently a press report quoted in these columns, referring to the failure of Société Fermière Industrielle & Commerciale, stated that it had been manufacturing the Automatique Ducasble tire. It now appears, however, that this tire is actually manufactured by the Compagnie Francaise du Caoutchouc in its factories at Halluin and Thiant-les-Valenciennes (Nord). This concern has no connection whatever with the firm that failed.

The quota of rubber toys to be imported into France during the third quarter of 1932 has been fixed at 2,866 kg. for molded toys and at 3,066 for inflatable toys.

Tau-sagyz Rubber[1]

Soviet Russia is to spend about 600,000,000 rubles to free itself from dependence on foreign supplies of rubber. The program for the second Five Year Plan, 1933-1937, includes the building of 9 large plants with annual capacity of from 7,000 to 15,000 tons for manufacturing Tau-sagyz rubber; while 1,150 young specialists trained for work on rubber-bearing plants will be turned out by Soviet universities and technical institutes.

The outstanding place among Soviet rubber-bearing plants belongs to Tau-sagyz, the roots of which are said to contain coagulated rubber. To separate the rubber the roots are dried and run through a primitive flour mill or the plants are soaked in water, thus separating the fibers from the rubber. About 15,000,000 bushes of Tau-sagyz were discovered in the Kora-Tau mountains, 75 km. from the station Turkestan on the Tashkent railroad. There a large refinery turns out Tau-sagyz rubber said to equal the best grades of the imported commodity. Tests of 10-month old plants show a rubber content, figured on the weight of the dried plant, of from 8.6 to 13.9% along the Tashkent Railroad.

In addition to the 15,000,000 bushes mentioned it is proposed to plant this year another 125,000,000 bushes over an area of 1,400 hectares, the total area planted during the entire second Five Year Plan to be 570,000 hectares. Figuring on a minimum crude rubber yield of 440 kgs. per hectare, an output of 88,000 tons of crude rubber, yielding 65,000 tons of refined rubber, is expected in 1937.

[1]Special Circular No. 3313, Rubber Division, Department of Commerce, Washington, D. C. See also INDIA RUBBER WORLD, Feb. 1, 1932, p. 93.

Rubber Industry in Far East

NETHERLANDS EAST INDIES

Forestry Methods for Rubber

The Birkemose experiment in rubber forestry in Malaya,[1] first brought to public attention by H. N. Whitford, naturally aroused much interest also in Java, where the system is not unknown. But although advocated from time to time by an occasional planter, it hitherto had not been considered very important. In fact, when a local paper first mentioned Birkemose's method, the West Java Experiment Station promptly published a derogatory article in *Bergcultures*. Since then, however, this paper has printed other articles on the subject: one describing a similar system as practiced by a planter and one by J. C. s'Jacob, in which a modified form of rubber forestry, artificial forestry he calls it, and its remarkable results are discussed.

According to Mr. s'Jacob a mixed plantation of Hevea and coffee was started in 1921 on very stony and sandy land on the Moemboel estate in South Djember, Java. From the start the Heveas showed very poor growth and suffered much from die-back. Nor was the condition of the coffee much better. In 1925 the coffee was cut out. By this time practically all the rubber suffered from die-back and was very much under-developed. It was then decided to prepare the soil after the first rains and to plant 3 green manures, *Centrosima, Calopagonium,* and *Crotalaria.* Some lamtoro trees, another type of green manure, already established on the land, were left in. After some weeding, to give the creeping plants a starts, the plantation was practically abandoned.

In March, 1929, it was decided to tap the trees. The garden by this time was a wilderness of Hevea mixed with lamtoro and everything almost entirely overgrown with *Centrosima,* which had killed the other 2 green manures. But there were no lalang nor other dangerous weeds and hardly any die-back to speak of.

Before tapping could be started paths had to be hacked through the *Centrosima* for the tappers, and the plant had to be cleared out of the Heveas, but otherwise no other clearing was done. The yields from the trees were surprisingly good and even now, after 3 years of regular tapping, are as good as those from a neighboring plantation of the same age, planted on good soil and regularly cared for. The average yield per bouw (bouw=1.75 acres) per tapping was 9.3 liters for the forest plantation and 8 liters for the normal one. The bark of the trees in the former was enormously thick, averaging 8.9 mm. for 50 trees taken at random; while for the normal plantation the average was 8.8 mm. Bark renewal, too, was excellent, better in fact that in the normal garden.

A remarkable fact observed was that despite the high degree of moisture in the rubber "forest," hardly any cases of stripe canker existed although the estate as a whole has always had much trouble from this disease.

All this, it is pointed out, shows that so far from being harmful, the system has in 5 years had the effect of transforming a very backward and diseased 5-year-old garden into one that is as healthy and gives as good yields, if not better, as an equally old garden that always has had normal care and is on good soil.

This success has led to the decision to apply the method in a slightly modified form on a larger scale both on Moemboel and the sister estate Kalisanen.

Mr. s'Jacob concludes his article with the remark that "artificial forestry" will probably help many young estates through the coming difficult times without much expense.

[1]See India Rubber World, Mar. 1, 1932, pp. 79-80.

Planters' Congress, Bandoeng

Various subjects were considered at the recent Planters' Congress at Bandoeng, Java. T. A. Tengwall discussed the results of a tapping inquiry early in 1932. A satisfactory number of estates, 353 filled in the questionnaire sent to them although only 298 of the estates were tapping in January, 1932. From the answers it appears that while some estates have introduced heavier tapping systems in an attempt to lower costs, others, particularly big high yielding estates, have followed a more conservative method. A large number of planters have substituted for their former alternate daily cut over ⅓ of the circumference the newer system of ½ cut every third day. The latter system gives practically the same yields, but the tapping costs are about ⅓ less.

The short tapping cuts, ¼ and ⅓ of the circumference, are no longer customary; the ½ cut apparently is the new standard. In periodical systems the ABC method, in which there are twice as many resting as tapping days, is gaining in popularity. The number of trees per tapper has been increased on a great many estates.

Latex from Buddings

A planter at the congress asked what was known about the rubber content of latex from buddings. It seems that after returning from European leave recently, he noticed that the latex from buddings was thinner than that of seedlings, and tests gave 20% dry rubber for the latex from the buddings, but 30% for that from seedlings. Later on, however, when another tapping task was started—this estate taps every other month—it was found that the buddings yielded latex with a rubber content of 36% against 35% from the seedlings. This condition, the planter decided, indicated that the decrease in rubber content he had noted in the first instance was due to the fatigue of a tapping period too long for the buddings. As the new month passed, he again noticed that the rubber content of latex from both seedling and buddings was lower, but the decrease was more marked in the case of the latter. In this case, at least, the buddings apparently show signs of fatigue much sooner than do seedlings.

Disease in Hevea Buddings

In Circular 98 of the General Experiment Station of the A. V. R. O. S. is described a bark disease occurring in Hevea buddings in the zone of the junction of scion and stem. This disease was first reported from a few estates having a high rainfall, and a considerable percentage of the trees was affected, in some cases seriously so. Later on, it was found that the disease was also observed on estates where the rainfall was not quite so high, but where a moist condition was induced by other circumstances.

It is suggested that possibly the present practice of economizing by not keeping clear spaces around trees where green manures are grown may help produce conditions favorable to the disease. In any case the disease is not considered serious since it is thought to be fairly easy to check. But difficulties may arise where it is not noticed in time, which is all the more likely at present because budded gardens are frequently left untapped even where they are 7 years old and, consequently, are not often visited. Planters, therefore, have been warned of the necessity of periodically examining these gardens, which after all constitute the main hope of the estates.

Manchuria

The San Sheng Rubber Shoes factory in Mukden, Manchuria, manufactures daily 1,000 pairs of rubber footwear. Five types of boots and shoes are produced, which retail from 0.15 to 0.80 yen per pair (yen = $0.498). The company has a working capital of 150,000 yen and employs 70 Korean workers. Rubber Division, Department of Commerce, Washington, D. C.

MALAYA

AREA PLANTED IN ACRES

	Estates of 100 Acres and Over			Estates Under 100 Acres	Total Area Planted
	Mature	Immature	Total		
Federated Malay States	784,574	160,674	945,248	561,724	1,506,972
Straits Settlements	190,661	20,756	211,417	126,346	337,763
Unfederated Malay States	.....	.....	798,998	427,586	1,226,584
Total Malaya	.....	.....	1,955,663	1,115,656	3,071,319

Planting Statistics

The *Malayan Agricultural Journal*, in its special rubber number of May, 1932, publishes several tables concerning the planted areas and outputs in Malaya at the end of 1931.

For the Straits Settlements it can be said that out of a total of 292 estates of 100 acres and over, covering in all 211,417 acres, 87 with a total area of 146,809 were owned by non-Asiatics; 162 estates with a total area of 52,864 acres were Chinese owned; 34 with area of 9,910 acres, Indian; and 9 with area of 1,834 acres Malay owned.

In the Federated Malay States the area owned by non-Asiatics is considerably more important. Out of a total of 1,106 estates covering 945,248 acres, they own 653 with acreage of 813,339; the Chinese, 299 on 92,389 acres; Japanese, 12 on 7,710 acres; Indians, 119 on 26,927 acres; and Malays, 23 on 4,883 acres.

If estates under 100 acres are considered to be all Asiatic owned, then the total area in the Federated Malay States and the Straits Settlements held by Asiatics comes to 884,587 acres; while Europeans and Americans hold 960,148 acres.

The total budgrafted area in Malaya at the end of 1931 was 137,974 acres of which 73,034 acres were in the Federated Malay States, 4,504 acres in the Straits Settlements, and 60,436 acres in the Unfederated Malay States. There were altogether 24 areas of over 1,000 acres each, 183 were between 100 and 1,000 acres, and 176 were between 10 and 100 acres each. Altogether, 5,886 acres were budgrafted in 1922 or earlier. During 1924 and 1925 interest in budding, to judge by the figures, flagged, to revive again in 1926. Greatest activity was shown in 1929, 1930, and 1931. In these 3 years 98,545 acres were budded.

Available figures show that at the end of 1931 there were 131,586 acres out of tapping on estates of 100 acres and over in the Federated Malay States, 51,273 acres in the Straits Settlements, and 103,779 acres in the Unfederated Malay States, making in all 286,638 acres.

The output of rubber from estates in 1931 was 239,538 tons and for small holdings, 197,108 tons. The average rate of production on estates in the F. M. S. was 403 lbs. per acre calculated on the tappable area, but 484 lbs. on the area actually tapped; that for the small holdings was 472 lbs. per acre of the probable tappable area. In the Straits Settlements the rate on estates was lower, 291 lbs. on the total tappable area and 393 lbs. on the area actually tapped; while the production on the tappable area of the small holdings was 489 lbs. per acre.

Quit Rents

Some months ago the Government gave relief to the planters in the Straits Settlements by remitting quit rents in excess of $2 per acre. In the Unfederated Malay States, outside of Johore, quit rents are not higher than $2 per acre. But in Johore and in the Federated Malay States these rents still constitute a heavy burden so that rubber growers in Kuala Lumpur, Ipoh, and Kuantan met to discuss the best means of bringing the matter to the notice of the Government. Planters here also want quit rents to be reduced to a maximum of $2 per acre for the present year and as long as conditions may warrant.

At one meeting it was pointed out: "Many estates have already defaulted and others will be forced to do so; such estates have reached the limit of their borrowing powers and it is submitted that if government can find no other way of allowing relief for which we ask, they have at least credit on which they can borrow, while the industry generally has not."

Rubber Research Institute

The Rubber Research Institute of Malaya has received considerable disapproval ever since its foundation, and the present serious financial condition has probably sharpened criticism. It is known that constant friction exists among the officers of the Institute, who do not all appear to be satisfied with the direction. Quite recently 3 of the better known officers were temporarily suspended, and no explanation for the action was obtainable by the press. Planters are asking themselves whether the work of the Institute justifies the costs of maintaining it, and the advisability of abandoning it is freely discussed.

This agitation has probably influenced the Board of the Institute to consider the question of retrenchment, and a special meeting was held on June 28 to discuss a report on it by the Executive Committee.

The report proposes to reduce all salaries of senior officers by 20%, which with the earlier cut of 5% makes 25%, but on condition that in each case the first $300 per month is to be exempted. Traveling allowances and other charges are to be slashed; while, finally, a number of dismissals are to be recommended, particularly in the Soils, Field, and Pathological Divisions. Under present conditions the work in these sections is considered of less immediate practical value, and research work will be concentrated mainly on the chemistry and physiology of latex production. This work involves chiefly the chemical and botanical divisions; hence their staffs here to be reduced as little as possible.

The revenue of the Rubber Research Institute is derived from an export cess of 10¢ per picul (133⅓ lbs.). Although planters asked to have this rate reduced, the Institute considers that even now the levy is not an insupportable burden and it cannot at present be lowered.

B. J. R. Barton, representing the Malayan Planters' Association at the meeting, stated in a memorandum that he could not agree with the above proposals because they did not go far enough and promised no relief to subscribers in regard to the cess. The organization resulting after the committee's recommendations have taken effect, he further said, would not be the best for the industry and all things considered he was of opinion that an amalgamation of the work of the Institute with the Department of Agriculture would be in the best interests of all concerned.

INDO-CHINA

The Rubber Planters' Association of Indo-China plans to form a cooperative buying and selling agency at Saigon in the interests of small growers. It accordingly sent André Hagen, sales agent for the Société des Caoutchoucs de l'Indochine and of the Société Indochine des Cultures Tropicales, to Singapore to study its methods of preparing and marketing rubber.

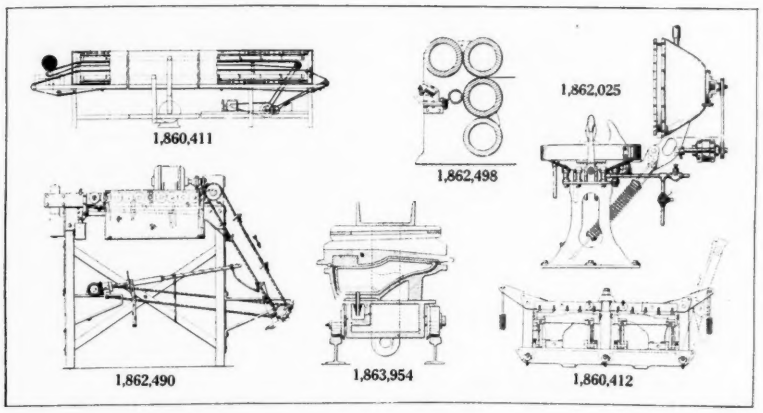
At present there is no rubber market in Indo-China; there are few large buyers and no small rubber dealers at all. The comparatively few plantations are practically situated in one district and have but a single outlet, Saigon. This circumstance, it is considered, favors the creation of a cooperative buying and selling organization. It is expected that such a body would enable growers to obtain in Saigon prices equal or, at least, very close to those at Singapore, which is not quite the case today. The cooperative selling would automatically bring into existence a market at Saigon which would benefit all planters.

According to figures in the *Bulletin du Syndicat des Planteurs de Caoutchouc de l'Indochine*, total output of rubber in Indo-China was 10,450 tons in 1930 and 11,750 tons in 1931. This rubber was obtained from 35,000 hectares of mature rubber so that the average yield per hectare in 1931 was 335 kgs.

Since 1925 the planted area has been increased by 75,000 hectares, of which ⅓ is in what are known as the "grey lands" and ⅔ in the richer "red lands." About half the area planted through 1928 and 1929, that is 15,000 hectares, has been budded and also the entire 5,000 hectares added in 1930. It is estimated that output from old plantations will be 12,000 tons for 1932, and from the younger estates, an additional 1,000 tons. By 1937 it is expected the young budded estates will yield at least 27,000 tons and the old ones, 14,000 tons. At present 37,954 contract and 32,415 free coolies are employed on rubber estates in Indo-China.

The planters still receive financial assistance from the government.

Patents, Trade Marks, Designs



Machinery

United States

1,860,411.* **Fabric Vulcanizer.** The apparatus comprises a system of belt conveyors by means of which rubber coated fabric can be unwound from a roll and drawn a number of times through a heating chamber from which it emerges cured at the same end that it originally entered. A. A. Glidden, T. M. Knowland, and W. R. Dow, all of Watertown, Mass., assignors, by mesne assignments, to Hood Rubber Co., Inc., Wilmington, Del.

1,860,412.* **Footwear Mold.** It comprises a steam heated hollow core and adjustable side plates for firmly positioning on the core the lasted fabric parts of a canvas shoe. Enclosure of the shoe in the mold is completed by a sole plate made with deep indentations and projections for impressing a non-skid surface on the sole and forming the heel. A. A. Glidden and T. M. Knowland, both of Watertown, Mass. assignors, by mesne assignments, to Hood Rubber Co., Inc., Wilmington, Del.

1,862,025.* **Rubber Shoe Vulcanizer.** This vulcanizing unit is of such size as to accommodate from 4 to 8 shoes. It has a steam-cavitied base, surmounted by a conical cover made tight by a flexible lip-gasket when closed. The goods to be vulcanized are heated within the chamber thus formed by means of a steam circulating coil arranged around the inner cover of the wall. C. W. Leguillon, Akron, O., assignor to B. F. Goodrich Co., New York, N. Y.

1,862,490.* **Endless Belt Machine.** Uncured V-belt cores when removed from the building drum are in band form. The function of this device is to separate the cores automatically following their removal from the collapsible building drum. W. H. Gerstenslager, assignor to Goodyear Tire & Rubber Co., both of Akron, O.

*Pictured in group illustration.

1,862,498.* **Weftless Cord Fabric.** This is an apparatus for separating and guiding cords for coating at the calender, which obviates the necessity of rethreading the cords. Hence one series of cords may be substituted for another series by substituting one device for another. Also the cords can be maintained in their proper positions at all times. W. W. Stephens, assignor to Goodyear Tire & Rubber Co., both of Akron, O.

1,863,954.* **Molded Shoe Vulcanizer.** This apparatus is adapted for the hot vulcanization of footwear. According to the invention the sole and heel are first brought to the required shape in a preliminary press, and only then combined in a closed vulcanizing mold with the upper fitted on an expanding last. D. F. Wilhelmi, Oosterbeek, Netherlands.

1,864,903. **Ring Cutter.** H. Gora, Bridgeport, Conn., assignor to Jenkins Bros., New York, N. Y.

1,865,302. **Web Slitter.** J. A. Cameron, assignor to Cameron Machine Co., both of Brooklyn, N. Y.

1,865,306. **Thickness Gage.** H. A. Daynes and J. R. Scott, assignors to Research Association of British Rubber Manufacturers, all of Croydon, England.

1,865,416. **Vulcanizing Apparatus.** H. V. Wodtke, Buffalo, assignor, by mesne assignments, to General Cable Corp., New York, both in N. Y.

1,865,434. **Automatic Mold Clamp.** L. Eggert, Toledo, O.

1,865,435. **Mold Stripper Oil Compensator.** L. Eggert, Toledo, O.

1,865,464. **Battery Box Press.** H. D. Geyer, assignor to Inland Mfg. Co., both of Dayton, O.

1,865,540. **Motor Driven Tread Stitcher.** F. G. Reid and N. L. Cornell, assignors to Dunlop Tire & Rubber Corp., all of Buffalo, N. Y.

1,865,577. **Golf Ball Thread Tensioning Device.** C. Macbeth, Birmingham, assignor to Dunlop Rubber Co., Ltd., London, both in England.

1,865,578. **Golf Ball Winding Control.** C. Macbeth, Birmingham, assignor to Dunlop Rubber Co., Ltd., London, both in England.

1,865,601. **Bead Setting Ring.** G. F. Wikle, Milwaukee, Wis., assignor to Fisk Rubber Co., Chicopee Falls, Mass.

1,865,650. **Tire Wrapper Bead Closure.** E. C. Taylor, Longmeadow, assignor to Fisk Rubber Co., Chicopee Falls, both in Mass.

1,865,669. **Inner Tube Splicer.** H. C. Bostwick, Kenmore, assignor to Akron Standard Mold Co., Akron, both in O.

1,866,390. **Segmental Drum.** H. C. Bostwick, assignor to Akron Standard Mold Co., both of Akron, O.

1,866,391. **Hinged Forming Drum.** H. C. Bostwick, assignor to Akron Standard Mold Co., both of Akron, O.

1,866,502. **Nozzle.** C. Iverson, assignor to National Rubber Machinery Co., both of Akron, O.

1,866,518. **Tire Spreader.** J. L. Peshette, Peru, N. Y.

1,866,537. **Abrasion Tester.** L. J. Lambourn, Ft. Dunlop, England, assignor to Dunlop Tire & Rubber Corp., Buffalo, N. Y.

1,866,628. **Inner Tube Apparatus.** H. A. Denmire assignor to General Tire & Rubber Co., both of Akron, O.

1,866,765. **Belt Press.** D. J. Gregory, New Haven, and W. C. Tifft, Seymour, assignors to Farrel-Birmingham Co., Inc., Ansonia, all in Conn.

1,866,785. **Mold Heating Element.** W. R. J. Woock, assignor to Super Mold Corp., both of Lodi, Calif.

1,866,790. **Tire Mold Matrix.** R. C. Bateman, assignor to Goodyear Tire & Rubber Co., both of Akron, O.

1,866,799. **Cutter.** E. Clark, assignor to Goodyear Tire & Rubber Co., both of Akron, O.

1,866,807. **Calender.** H. O. Hutchens and A. R. Krause, assignors to Gillette Rubber Co., all of Eau Claire, Wis.

1,866,820. **Latex Strip Forming Device.** C. R. Park, assignor to Goodyear T. & R. Co., both of Akron, O.

1,866,832. **Tire Repair Mold.** W. R. J. Woock, assignor to Super Mold Corp., both of Lodi, Calif.

1,866,994. **Tire Core and Chuck.** H. C. Bostwick, assignor to Akron Standard Mold Co., both of Akron, O.

1,867,015. **Tube Tester.** B. A. Lundy, Larchmont, N. Y.

1,867,132. **Heel Mold.** F. Berenstein, assignor to Panco Rubber Co., both of Chelsea, Mass.

1,867,248. **Tube Repairing Clamp.** B. Brotherman and F. J. Bowen, Jr., both of San Antonio, Tex.

1,867,304. **Press Safety Lock.** J. W. Brundage, assignor to Summit Mold & Machine Co., both of Akron, O.

1,867,369. **Automatic Vulcanizing Mold.** C. E. Maynard, Springfield, assignor to Fisk Rubber Co., Chicopee Falls, both in Mass.

1,867,370. **Tire Building Machine Guide.** C. E. Maynard, Northampton, assignor to Fisk Rubber Co., Chicopee Falls, both in Mass.

1,867,557. **Tire Shaper.** A. O. Abbott, Jr., assignor to Morgan & Wright, both of Detroit, Mich.
1,867,625. **Conductor Compacting Device.** T. B. Huestis, assignor to National India Rubber Co., both of Bristol, R. I.
1,867,734. **Vulcanizing Mold Time Controller.** P. De Mattia, Passaic, N. J., assignor, by mesne assignments, to National Rubber Machinery Co., Akron, O.
1,867,972. **Molding Press.** L. S. Hubbert, Mt. Gilead, O., and C. J. Zube, Los Angeles, Calif., assignors to Hydraulic Press Mfg. Co., Mt. Gilead, O.

Dominion of Canada

323,716. **Tire Shaper and Airbag Inserter.** Goodyear Tire & Rubber Co., Akron, O., assignee of B. De Mattia, Clifton, N. J., both in the U. S. A.
323,914. **Shoe Toe Cementer.** Dominion Rubber Co., Ltd., Montreal, P. Q., assignee of H. R. Polleys, New Haven, Conn., U. S. A.
323,915. **Tire Forming Device.** Dominion Rubber Co., Ltd., Montreal, P. Q., assignee of A. Otto, Grosse Pointe Park, Mich., U. S. A.
323,929. **Plastic Material Extruder.** Goodyear Tire & Rubber Co., assignee of W. C. State and J. I. Haase, co-inventors, all of Akron, O., U. S. A.
323,930. **Strip Alinement Indicator.** Goodyear Tire & Rubber Co., assignee of R. D. Evans, both of Akron, O., U. S. A.
324,136. **Footwear Vulcanizer.** Dominion Rubber Co., Ltd., Montreal, P. Q., assignee of C. J. Randall, Woonsocket, R. I., U. S. A.

United Kingdom

369,315. **Footwear Molding Device.** North British Rubber Co., Ltd., and W. A. Williams, both of Edinburgh, Scotland.
369,554. **Extruding Device.** Dunlop Rubber Co., Ltd., London, and H. Willshaw, Ft. Dunlop.
369,910. **Fabric Coating Device.** Collins & Aikman Corp., Philadelphia, assignee of A. W. Drobile, Cynwyd, both in Pa., U. S. A.
370,009. **Tube Collecting Device.** Dunlop Rubber Co., Ltd., London, Anode Rubber Co., Ltd., St. Peter's Port, Channel Islands, E. A. Murphy and W. G. Gorham, both of Ft. Dunlop.

Germany

554,415. **Applying Rubber to Zipper Fastenings.** Waldes & Co., Prag-Vrsovice, Czechoslovakia. Represented by L. Schiff, Berlin.

Process

United States

1,864,621. **Rubber Goods.** V. J. Sprunger, assignor to American Anode, Inc., both of Akron, O.
1,864,937. **Nonskid Tire Tread.** R. B. Respess, Wickford, assignor, by mesne assignments, to Respats, Inc., Cranston, both in R. I.
1,865,230. **Composite Article.** B. Bronson, assignor to Ohio Rubber Co., both of Cleveland, O.
1,867,540. **Forming Universal Joints.** R. H. Rosenberg, Detroit, Mich., assignor to Budd Wheel Co., Philadelphia, Pa.
1,867,879, 1,867,880, and 1,867,881. **Footwear.** J. B. Crockett, assignor to Cambridge Rubber Co., both of Cambridge, Mass.
1,868,137. **Pressed Footwear.** H. C. L. Dunker, Helsingborg, Sweden.

Dominion of Canada

323,991. **Hard Rubber Article.** Western Electric Co., Inc., New York, N. Y., assignee of A. H. Voss, La Grange, Ill., both in the U. S. A.
324,243. **Shoe Welt.** H. C. L. Dunker, Helsingborg, Sweden.
324,382. **Friction Facing.** Raybestos-Manhattan, Inc., Passaic, assignee of D. Repony, Clifton, both in N. J., U. S. A.
324,411. **Footwear.** Hood Rubber Co., Inc., Watertown, and Holden Knitting Co., Worcester, the former assignee of L. H. Burnham, Lexington, and the latter assignee of R. M. Holden, Worcester, co-inventors, all in Mass., U. S. A.

United Kingdom

368,544. **Pneumatic Tire.** Goodyear Tire & Rubber Co., Akron, O., U. S. A.
368,587. **Recovering Waste Rubber.** A. Bray and J. Demarquay, both of Brussels, Belgium.
368,607. **Paving Block.** Naamlooze Vennootschap De Bataafsche Petroleum Maatschappij, The Hague, Netherlands.
368,616. **Flooring.** Linoleum Mfg. Co., Ltd., and A. A. Godfrey, London.
368,743. **Cable.** Macintosh Cable Co., Lt., and A. Sargent, Derbydon.
368,902. **Soft Rubber.** R. M. Ungar and P. Schidrowitz, both of London.
369,041. **Footwear.** A. E. White, London. (Hood Rubber Co., Inc., Watertown, and Holden Knitting Co., Worcester, both in Mass., U. S. A.)
369,643. **Floor Covering.** Collins & Aikman Corp., Philadelphia, Pa., and P. H. Chance, Montclair, N. J., both in the U. S. A.
370,476. **Hose.** L. Mellersh-Jackson, London. (New York Belting & Packing Co., New York, N. Y., U. S. A.)

Chemical

United States

1,864,662. **Plastic Composition.** E. B. Miller, assignor to Silica Gel Corp., both of Baltimore, Md.
1,865,035. **Printing Ink Composition.** L. C. Neale, Flemington, Australia.
1,865,265. **Accelerator.** G. L. Magoun, Nitro, W. Va., assignor to Rubber Service Laboratories Co., Akron, O.
1,865,477. **Accelerator.** W. E. Messer, assignor to Naugatuck Chemical Co., both of Naugatuck, Conn.
1,865,728. **Accelerator.** R. L. Sibley, Nitro, W. Va., assignor to Rubber Service Laboratories Co., Akron, O.
1,866,287. **Brake Lining Composition.** W. A. Blume, Detroit, Mich., assignor to American Brake Materials Corp., New York, N. Y.
1,867,034. **Accelerator.** G. H. Stevens, Newark, N. J.
1,867,631. **Accelerator.** C. J. Romieux, Elizabeth, and L. J. Christmann, Jersey City, both in N. J., assignors to American Cyanamid Co., New York, N. Y.
1,867,633. **Rubber Dispersing Agent.** R. G. Seaman, Dover, N. J., assignor to Naugatuck Chemical Co., Naugatuck, Conn.
1,867,761. **Age Resister.** E. Rietz, Wuppertal-Sonnborn, assignor to I. G. Farbenindustrie A. G., Frankfurt a. M., both in Germany.
1,868,145. **Accelerator.** L. H. Howland, Passaic, N. J., assignor to Naugatuck Chemical Co., Naugatuck, Conn.

Dominion of Canada

323,592. **Rubber Composition.** J. Baer, Basel, Switzerland.
323,754. **Age Resister.** Rubber Service Laboratories Co., Akron, O., assignee of J. R. Ingram, Nitro, W. Va., both in the U. S. A.
323,879. **Rubber Composition.** Canadian Industries, Ltd., Montreal, P. Q., assignee of J. J. Moriarty, Toronto, Ont.
323,926 and 323,927. **Antioxidant.** Goodyear Tire & Rubber Co., assignee of A. M. Clifford, both of Akron, O., U. S. A.
323,931. **Compounding Rubber.** Goodyear Tire & Rubber Co., Akron, O., U. S. A., assignee of E. C. Gagnon, Hurlingham, Argentina.

United Kingdom

369,576. **Rubber and Cellulose Composition.** Leather Cloth Co., Ltd., and M. Bandli, both of London.
369,647. **Rubber Composition.** W. W. Triggs. London. (Felten & Guilleaume, Carlswerk A. G., Cologne, Germany.)
369,716 and 369,725. **Rubber Conversion Product.** J. Y. Johnson, London. (I. G. Farbenindustrie A. G., Frankfurt a. M., Germany.)

Germany

554,375. **Covering Aluminum with Hard Rubber.** Anode Rubber Co., Ltd., St. Peter's Port, Channel Islands. Represented by W. Karsten and C. Wiegand, both of Berlin.
554,376. **Porous Rubber.** F. Ringer, Vienna, Austria. Represented by G. Winterfeld, Berlin.
554,669. **Vulcanizing Process.** Naugatuck Chemical Co., Naugatuck, Conn., U. S. A. Represented by K. Michaelis, Berlin.
554,820. **Porous Objects.** E. Nottebohm, Hamburg, and H. Roth, Konstanz.
555,501. **Threads and Tubing.** W. Esch, Hamburg.
555,586. **Rubber Mixings with Glycerin Esters.** Deutsche Hydrierwerke A.G., Rodleben b. Rosslau, i. Anh.
555,858. **Concentrating Dispersions.** K. D. P., Ltd., London, England.
555,860. **Objects from Dispersions.** Dunlop Rubber Co., Ltd., London, England, and Anode Rubber Co., Ltd., St. Peter's Port, Channel Islands. Represented by W. Karsten and C. Wiegand, both of Berlin.
556,192. **Porous Soft and Hard Rubber.** H. Ziegner, Hagen i. W.
556,313. **Objects from Aqueous Dispersions.** Dunlop Rubber Co., Ltd., London, England, and Anode Rubber Co., Ltd., St. Peter's Port, Channel Islands. Represented by W. Karsten and C. Wiegand, both of Berlin.

Latex

United States

1,867,970. **Latex Composition.** A. J. Hailwood, W. J. S. Naunton, and A. Shepherdson, all of Manchester, assignors to Imperial Chemical Industries, Ltd., London, all in England.

Dominion of Canada

323,682. **Rubber Coloring Product.** Canadian Industries, Ltd., Montreal, P. Q., assignee of J. F. Darling, Woodstown, N. J., and D. H. Powers, Providence, R. I., co-inventors, both in the U. S. A.

324,336. **Aqueous Dispersion Product.** Dunlop Rubber Co., Ltd., London, assignee of W. H. Chapman and F. H. Lane, co-inventors, both of Birmingham, all in England.

United Kingdom

368,718. **Latex.** A. Carpmael, London. (I. G. Farbenindustrie A. G., Frankfurt a. M., Germany.)

368,867. **Rubber Composition.** J. Aumarechal, Boulogne-sur-Seine, and G. Robrieux, Paris, both in France.

369,474. **Impregnating Fibrous Materials.** N. E. Brookes, London. (Dewey & Almy Chemical Co., N. Cambridge, Mass., U. S. A.)

369,561. **Concrete Pipe Composition.** R. Critchley, Ltd., and A. E. Bond, both of Manchester.

369,915. **Making Dispersions.** J. Y. Johnson, London. (I. G. Farbenindustrie A. G., Frankfurt a. M., Germany.)

Germany

554,973. **Electro Depositions.** Anode Rubber Co., Ltd., London, England. Represented by W. Karsten and C. Wiegand, both of Berlin.

554,974. **Purifying Latex.** K. D. P., Ltd., London, England. Represented by F. Cochlovius, Frankfurt a. M.

556,346. **Stabilizing Rubber.** Silesia Verein Chemischer Fabriken, Ida-und Marienhutte b. Saarau i. Schles.

General

United States

1,864,512. **Electrical Conductor.** C. W. Abbott, Rome, assignor, by mesne assignments, to General Cable Corp., New York, both in N. Y.

1,864,513. **Golf Club Head.** J. H. Balch, Chicago, Ill.

1,864,708. **Penholder.** L. V. Aronson, Newark, N. J., assignor to Art Metal Works, Inc., a corp. of N. J.

1,864,917. **Valve.** A. Lenktis, Brooklyn, N. Y.

1,864,938. **Tire Nonskid Member.** R. B. Respess, Wickford, assignor, by mesne assignments, to Respats, Inc., Cranston, both in R. I.

1,864,939. **Tire.** R. B. Respess, Wickford, assignor, by mesne assignments, to Respess, Inc., Cranston, both in R. I.

1,864,949. **Arch Support.** W. M. Scholl, Chicago, Ill.

1,865,011. **Table Cover.** C. A. Hupp, Indianapolis, assignor of ½ to W. M. Wilt, Syracuse, both in Ind.

1,865,231. **Tire Valve Stem.** R. E. Buck, Vicksburg, Mich.

1,865,260. **Squeeze Roll.** G. R. Keltie, assignor to American Wringer Co., both of Woonsocket, R. I.

1,865,310. **Conveyer Belt.** D. P. Finney, Wilson, Pa.

1,865,334. **Endless Track Member.** O. S. Penn, Malew, assignor to Roadless Traction, Ltd., Hounslow, Middlesex, both in England.

1,865,345. **Covering.** G. H. Wheatley, Oak Park, Ill.

1,865,359. **Fish Bait.** W. F. Eger, Bartow, Fla.

1,865,381. **Brassiere.** P. J. Moran, Newark, N. J., assignor to I. Rosner, New York, N. Y.

1,865,415. **Cable.** H. V. Wodtke, Buffalo, assignor, by mesne assignments, to General Cable Corp., New York, both in N. Y.

1,865,456. **Freezing Tray.** R. H. Chilton, Dayton, O., assignor to General Motors Corp., Detroit, Mich.

1,865,481. **Tennis Ball Gas Container.** A. E. Penfold, Birmingham, England, assignor to Dunlop Tire & Rubber Corp. of America, Buffalo, N. Y.

1,865,526. **Window Pole.** S. C. Lawlor, Chicago, Ill.

1,865,580. **Tire Valve.** A. J. Michelin, Paris, assignor to Michelin & Cie., Clermont-Ferrand, both in France.

1,865,625. **Sole.** C. J. Futter and G. W. Blair, assignors to Mishawaka Rubber & Woolen Mfg. Co., all of Mishawaka, Ind.

1,865,640. **Electrical Condenser.** A. Nyman, assignor to Dubilier Condenser Corp., both of New York, N. Y.

1,865,871. **Tire Pressure Indicator.** J. Marchese, Portland, and M. B. D'Orsay, Aloha, both in Ore., assignors, by mesne assignments, to Tire Savers Corp., Ltd., San Jose, Calif.

1,865,957. **Suction Cup for Artificial Teeth.** H. R. Priest, Loudonville, O.

1,866,062. **Inflated Swimming Suit.** D. Simon, Jr., Upton, Mass.

1,866,140. **Pressure Gage.** J. Wahl, Rosedale, assignor to A. Schrader's Son, Inc., Brooklyn, both in N. Y.

1,866,402. **Windshield Wiper Holder.** A. Ellerby, Los Angeles, Calif.

1,866,635. **Receptacle Closure.** Carlos Aparicio Y Elizalde, Engracia, Madrid, Spain.

1,866,652. **Wheel.** M. Isaacson, Dayton, F. E. Loudy, Akron, and F. R. Bussdicker, Dayton, all in O.

1,866,797. **Solid Tire.** R. S. Burdette, assignor to Goodyear Tire & Rubber Co., both of Akron, O.

1,866,892. **Waterproof Coat.** B. E. Knox, assignor to Special Clothing Co., both of Chicago, Ill.

1,866,982. **Signal Post.** R. B. Michener, Detroit, Mich.

1,867,039. **Belt.** L. H. Von Ohlsen, New Haven, Conn., assignor to Safety Car Heating & Lighting Co., a corp. of N. J.

1,867,103. **Golf Club Head.** F. H. Schavoir, Stamford, Conn., assignor to Schavolite Golf Corp., New York, N. Y.

1,867,156. **Clamping Device.** W. C. Jackson, assignor to Tingley Reliance Rubber Corp., both of Rahway, N. J.

1,867,175. **Window Channel.** J. S. Reid, Shaker Heights, assignor to Reid Products Co., Cleveland, O.

1,867,358. **Motor Mounting.** J. K. Harness, assignor to Chrysler Corp., both of Detroit, Mich.

1,867,364. **Steering Mechanism.** R. K. Lee, assignor to Chrysler Corp., both of Detroit, Mich.

1,867,438. **Tire.** A. Baeck, Lake Ronkonkoma, N. Y.

1,867,443. **Football Casing and Bladder Connecter.** F. Dieterle, Utica, N. Y.

1,867,480. **Trolley Pole.** E. S. Tillinghast, Carson Lake, Minn.

1,867,551. **Bumper.** C. P. Daniel, Bristol, Va.

1,867,563. **Air Boat.** J. D. Clarke, W. Haven, Conn.

1,867,776. **Sliding Window.** F. J. Stuart, assignor of ½ to A. S. Cheston, both of Birmingham, England.

1,867,890. **Sprayer.** W. W. H. Pyn, New York, N. Y.

1,868,080. **Weatherstrip.** F. S. Slater and A. J. Miller, both of Detroit, Mich.; said Slater assignor to said Miller.

1,868,165. **Tire Valve.** T. A. Hammond, Montclair, N. J.

1,868,303. **Artificial Limb Socket.** L. W. Balch and E. De Wagenaere, both of Minneapolis, Minn.

1,868,305. **Brush Hanger.** W. T. Craven, Philadelphia, Pa.

1,868,351. **Heel and Wear Plate.** A. A. Esterson, assignor to Holtite Mfg. Co., both of Baltimore, Md.

1,868,424. **Pneumatic - Tired Railway Coach.** A. J. Michelin, Paris, assignor to Michelin & Cie., Clermont-Ferrand, both in France.

Reissue

18,513. **Inner Tube and Valve Stem.** F. H. Watson, Jonesboro, assignor to F. H. Watson Co., Little Rock, both in Ark.

Dominion of Canada

323,733. **Mat.** Lima Cord Sole & Heel Co., assignee of J. E. Grosjean, both of Lima, O., U. S. A.

323,905. **Engine Mounting.** Chrysler Corp., assignee of R. K. Lee, both of Highland Park, Mich., U. S. A.

323,928. **Heel.** Goodyear Tire & Rubber Co., assignee of H. P. Protheroe, both of Akron, O., U. S. A.

324,006. **Nursing Bottle Nipple.** F. Brown, Philadelphia, Pa., U. S. A.

324,337. **Tubing Reenforcement.** Dunlop Tire & Rubber Goods Co., Ltd., assignee of G. A. Ansell, both of Toronto, Ont.

324,391. **Railway Draft Rigging.** Symington Co., New York, assignee of D. S. Barrows, Rochester, both in N. Y., U. S. A.

United Kingdom

367,635. **Horseshoe.** J. Reeves, Hulme, Stoke-on-Trent.

367,837. **Spring.** Landis & Gyr Soc. Anon., Zug, Switzerland.

368,000. **Hose Connecter.** S. Herz, Ges., Berlin, Germany.

368,076. **Shock Absorber.** L. Trescartes, Seine-et-Oise, France.

368,247. **Yielding Bearing Support.** International General Electric Co., Inc., New York, N. Y., U. S. A., assignee of Allgemeine Elektricitäts-Ges., Berlin, Germany.

368,328. **Bottle Cap.** H. Wade, London. (Crown Cork & Seal Co., Inc., Baltimore, Md., U. S. A.)

368,411. **Tire.** E. Golstein, Rhineland, Germany.

368,435. **Lubricating Bearing.** General Electric Co., Ltd., London, and H. C. E. Jacoby, Birmingham.

368,464. **Cyclists' Protective Garment.** M. Mendes, London.

368,562. **Tire.** M. and R. Baudou, both of Gironde, and J. Brunswick, Boulogne-sur-Seine, all in France.

368,672. **Street Post.** Metzeler & Co., A. G., Munich, Germany.
368,813. **Road and Rail Tire.** P. Bruckmann, Frankfurt a. M., Germany.
368,833. **Detachable Heel.** M. Eagles, Douglas, Isle of Man.
368,856. **Inner Tube.** W. E. Holyhead and R. G. White, Bournemouth.
368,967. **Wheel.** C. Armstrong, Edinburgh, Scotland.
369,020. **Pulley.** Continental Gummi-Werke, A. G., Hannover, Germany.
369,037. **Medical Pump.** Y. Wada, Sendaishi, Japan.
369,069. **Tire Pressure Gage.** A. Schrader's Son, Inc., Brooklyn, assignee of J. Wahl, Rosedale, N. Y., U. S. A.
369,077. **Sole.** Gummi & Maschinenfabrik Zurich A. G., Zurich, Switzerland.
369,176. **Tire Pressure Gage.** A. Schrader's Son, Inc., Brooklyn, assignee of J. Wahl, Rosedale, both in N. Y., U. S. A.
369,245. **Springs.** H. C. Lord, Erie, Pa., U. S. A.
369,282. **Top Boot.** C. W. Randall & Co., Ltd., London. (Hood Rubber Co., Watertown, Mass., U. S. A.)
369,303. **Typewriter Keys.** H. Frederking and H. Wieselhuber, both of Berlin, Germany.
369,406. **Pneumatic Tire.** Goodyear Tire & Rubber Co., Akron, O., U. S. A.
369,428. **Pneumatic Tire.** J. A. Richard-Saudou, Loire, France.
370,027. **Animal Feeding Device.** M. R. Dod, Sussex.
370,201. **Toothbrush.** I. Varga, Budapest, Hungary.
370,473. **Toy.** E. Wincott, London.
370,761. **Elastic Stocking.** P. Adamson, Rye, N. Y., U. S. A.

Trade Marks

United States

295,307. **Kurlash.** Eyelash curler strips. The Kurlash Co., Inc., Rochester, N. Y.
295,443. **Gumotex.** Toy animals and dolls. Magyar Ruggyantaárugyár Részvénytársaság, Budapest, Hungary.
295,455. Representation of a gondola and the sun and the word: **"Venice."** Prophylactic articles. I. J. Friedland, Atlanta, Ga.
295,461. Representation of a miniature of a Colonial gentleman. Raincoats. A. Decker & Cohn, Inc., Chicago, Ill.
295,462. **The Railroader.** Rubbers. Sears, Roebuck & Co., Chicago, Ill.
295,477. **Weav-O-Lastic.** Elastic. I. B. Kleinert Rubber Co., New York, N. Y.
295,495. Representation of a butterfly on a stem and the words: **"Velvo Silks."** Prophylactic articles. Dean Rubber Mfg. Co., N. Kansas City, Mo.
295,538. **Acto** Golf balls. Atlas Supply Co., Newark, N. J.
295,540. **Acto.** Hose, linings, and fan belts. Atlas Supply Co., Newark, N. J.
295,598. **Dryerwet.** Raincoats. S. R. Singer, New York, N. Y.
295,611. **Monarch.** Hose, belting, and packing. Hewitt-Gutta Percha Rubber Corp., Buffalo, N. Y.
295,701. Representation of a shield and sword and the words: **"Health-Gard."** Crib sheeting, mattress covers, bath mats, etc. J. Stein, doing business as Climax Rubber Co., New York, N. Y.
295,748. **Permalux.** Antioxidant. E. I. du Pont de Nemours & Co., Wilmington, Del.
295,863. **Always Swivel and Roll.** Casters. Darnell Corp., Ltd., Long Beach, Calif.
295,879. **Wizard.** Golf balls and clubs. Western Auto Supply Co., Kansas City, Mo.
295,889. Representation of a shield and sword and the words: **"Health-Gard."** Dress shields and sanitary goods. J. Stein, doing business as Climax Rubber Co., New York, N. Y.
295,982. **Ideal.** Dolls. Ideal Novelty & Toy Co., Brooklyn, N. Y.
295,991. **Pro Royal.** Golf balls. United States Rubber Co., New York, N. Y.
296,181. **Golden Pheasant.** Sanitary protectors. W. H. Reed, doing business as W. H. Reed & Co., Atlanta, Ga.

EDITOR'S BOOK TABLE

Book Reviews

"Yearbook of Agriculture 1932." Milton S. Eisenhower, Editor, Arthur P. Chew, Associate Editor. United States Government Printing Office, Washington, D. C., 1932.

This yearbook of the United States Department of Agriculture contains, in addition to the general report of the year in agriculture by the Secretary of the Department, a series of articles by specialists and voluminous statistical information of agricultural and trade interest, including imports of crude rubber and international rubber trade. There is also a brief article on "Rubber Plant Hybrids of Madagascar Species," that proved vigorous in the United States.

"National Directory of Commodity Specifications." Classified and alphabetical lists and brief descriptions of specifications of national recognition Miscellaneous Publication No. 130. Prepared by Clarence W. Ingels under the direction of A. S. McAllister, Chief of the Division of Specifications, United States Government Printing Office, Washington, D. C., 1932. Cloth, 548 pages, 7½ by 11 inches. Indexed.

This volume is an attempt on the part of the Department of Commerce to collect and publish a classified list and brief description of the standards and specifications formulated by the national technical societies, the trade associations having national recognition, or other organizations which speak for industry or with the authority of the Federal Government as a whole.

The standards and specifications for rubber products mentioned in the directory are too numerous to list there being, for example, specifications for no less than 16 different kinds of hose alone, and for 11 different kinds of druggists' rubber sundries, these having been prepared by various national technical societies, trade associations, and the Federal Specifications Board.

New Publications

The Vanderbilt News. R. T. Vanderbilt Co., 230 Park Ave., New York, N. Y. The May-June, 1932, issue of this publication is devoted to consideration of "Superaging Rubber Compounds." The subject is discussed exhaustively in connection with new and old accelerators, and formulæ are given for many superaging stocks. C. C. Davis of the Boston Woven Hose & Rubber Co., Boston, Mass., contributes an article on "Antioxidants in Theory and Practice" in which he discusses the topic in a way very helpful to rubber chemists and technologists.

"Cadalyte—A Process and Product for Cadmium Plating." The Grasselli Chemical Co., Inc., Cleveland, O. This informative and finely illustrated booklet outlines the results of the research work of the Grasselli company on the application of cadmium in the field of rust protection. For the rubber manufacturer and mold maker this subject has special interest because of the finish and protection given by cadmium plating to molds and other appurtenances of the rubber plant. The Cadalyte process is the method of depositing pure metallic chromium. The Cadalyte product is a dry mixture of all the chemicals required for the Cadalyte process.

"Protective Footwear." Mine Safety Appliances Co., Pittsburgh, Pa. This 4-page bulletin, No. 115, illustrates and describes M-S-A leather and rubber and all rubber shoes and pacs designed to protect the industrial worker from injury and to minimize economic waste.

"Wire Cloth Selecting and Testing." Catalog No. 32. Newark Wire Cloth Co., Newark, N. J. This indexed book of 104 pages is a complete handbook on wire cloth and wire cloth products. It presents the novel and outstanding feature of a "Glossary of Wire Cloth Terms." It is, in short, a compilation of authoritative data and concise information of value for all users of wire cloth.

"The Improved Metal Edge Method of Packaging." National Metal Edge Box Co., Callowhill at Twelfth St., Philadelphia, Pa. The system of producing paper boxes of superior strength is fully illustrated and described, and its numerous advantages are detailed in this comprehensive portfolio. The tests of construction shown are convincing proof of the claims made that it is the "strongest paper box." The adaptability of this method of packaging meets the needs of many widely diversified types of business as is strikingly shown by the illustrations.

"The Counter Current Rapid Mixer" (Patent Eirich), Lancaster Iron Works, Inc., Lancaster, Pa. This 8-page folder illustrates and describes the counter-current mixing system; also the various types of mixers that are manufactured by the company. The circular contains valuable information on the mixing of wet or dry materials.

FINANCIAL

Dividends Declared

Company	Stock	Rate	Payable	Stock of Record
Canada Wire & Cable, Ltd.	Pfd.	$1.62½ q.	Sept. 15	Aug. 31
Firestone Tire & Rubber Co.	Pfd.	$1.50 q.	Sept. 1	Aug. 15
Gates Rubber Co.	Pfd.	$1.75 q.	Sept. 1	Aug. 15
Goodyear Tire & Rubber Co.	Pfd.	$1.75 q.	Oct. 1	Sept. 1
Norwalk Tire & Rubber Co.	Pfd.	$0.87½ q.	Oct. 1	Sept. 22
Plymouth Rubber Co.	Pfd.	$1.75 q.	July 15	.....
Raybestos-Manhattan, Inc.	Com.	$0.15	Sept. 15	Aug. 31

United Carbon Co.

United Carbon Co., 350 Fifth Ave., New York, N. Y., and subsidiaries for the 6 months ended June 30, report profit after depreciation and depletion, but before federal taxes, $104,636, against net loss of $34,288 in first half of 1931. Quarter ended June 30: Profit after these charges, $42,969, against $61,667 profit in preceding quarter and net loss of $56,546 in June quarter last year. Consolidated balance sheet as of June 30 shows current assets of $3,299,914 and current liabilities of $929,163. Bank loans were reduced in the second quarter to $600,000, or by about 20%. The increased sale of natural gas rather than improved carbon black business was responsible for the better showing.

Raybestos-Manhattan, Inc.

Raybestos-Manhattan, Inc., Passaic, N. J., reports for 6 months ended June 30, 1932, consolidated net loss of $117,600 after taxes, depreciation, etc. This compares with net income of $580,179, equivalent to 86¢ a share on 670,012 shares of no-par capital stock in the first half of 1931. For the quarter ended June 30 consolidated net loss was $106,727 after taxes, depreciation, etc., comparing with net loss of $10,872 in the preceding quarter, and net income of $338,976, or 50¢ a share on 676,012 shares in June quarter of the previous year.

Goodyear's Semi-Annual Statement

The Goodyear Tire & Rubber Co., Akron, O., consolidated net sales for the 6-month period were $68,953,780. Consolidated earnings for this period, before interest and discount charges, were $2,043,445, after providing $5,342,565 for depreciation of plant buildings, machinery, and equipment; after federal income taxes and after reducing inventories and commitments to current market levels as of June 30.

Inventories of raw materials and commitments for future deliveries of raw materials as well as the rubber and cotton content of finished product are valued consistently with past practice on the basis of cost or market, which ever is lower.

Cash and government securities (valued at cost or market, whichever is lower) amount to $41,797,727; the company's financial position continues to be strong, there being no indebtedness to banks and the ratio of current assets to current liabilities being 8.7 to 1.

United States Rubber Co.

TO THE STOCKHOLDERS: Net sales for the 6 months ended June 30, 1932, amounted to $42,432,014. Sales for the first 6 months of 1931 were $60,540,047. Net sales of the Samson Tire & Rubber Corp., Los Angeles, Calif., and of the Gillette Rubber Co., Eau Claire, Wis., which have not been included with the sales of the United States Rubber Co., amounted to $6,202,020 for the first 6 months of 1932 compared with $6,290,316 for the same period of 1931.

The loss from operations, after interest on funded indebtedness of $2,267,054 but before provision for depreciation, amounted to $843,369. Provision for depreciation was $4,185,030 and the net decrease in surplus account amounted to $5,028,399.

The condensed consolidated balance sheet as of June 30, 1932, was as follows:

ASSETS	
Cash	$11,608,236
Accounts and notes receivable (net)	22,384,835
Inventories	22,826,127
Current assets	$56,819,198
U. S. Rubber Plantations, Inc.	$27,257,047
Securities of controlled companies	4,175,218
Other securities and mortgages	1,193,621
Total investments	$32,625,886
Property and equipment (net)	$84,478,578
Prepaid and deferred assets	2,289,345
	$176,213,007
LIABILITIES	
Accounts and acceptances payable	$3,321,102
Accrued liabilities	3,188,279
6½% Serial notes due March 1, 1933 (net)	1,438,000
6% Secured notes due June 1, 1933 (net)	11,810,000
Current liabilities	$19,757,381
Long term indebtedness (net)	$69,166,741
Reserves	3,652,706
Minority interest in subsidiary companies	338,700
Capital stock—preferred	65,109,100
Net worth of common stock—1,464,371 shares no par value	18,188,379
	$176,213,007

Provision for depreciation for the plantations amounted to $180,000. After this provision and all other charges, the plantations had a loss of approximately $468,000. These results have not been included in the statement of the United States Rubber Co.

By order of the Board of Directors,
F. B. DAVIS, JR.,
Chairman.

1790 Broadway,
New York, N. Y.
August 3, 1932.

The B. F. Goodrich Co.

Consolidated net sales of The B. F. Goodrich Co., Akron, O., during the first 6 months of 1932 amounted to $47,183,000 compared with $59,878,000 for the same period in 1931, a decrease of 21%. Although dollar sales showed a marked decline, due mainly to lower level of selling prices, unit sales of tires showed an increase.

Operations for the 6 months' period resulted in a profit of $1,022,000 after full provision for depreciation and interest, and including a profit arising from purchases of the company's bonds and debentures.

From the profit of $1,022,000 was deducted $1,733,000, representing writedown to market prices on June 30 for rubber and cotton on hand and on commitment. The net loss after writedown amounted to $710,000 compared with a loss of $288,000 during the first 6 months of 1931.

Following the mid-year practice of the company, material content in semi-finished and finished goods was valued at cost.

Current assets on June 30 amounted to $64,626,000 (including $14,567,000 of cash and marketable securities) and current liabilities to $6,515,000, giving a ratio of 9.92 to 1.

New Incorporations

General Rubber Fabrics Co., of Boston, May 3 (Mass.), capital $5,000. President, J. Berkowitz; treasurer, W. T. Berkowitz, 260 Summer St., Lynn; and secretary, J. Berkowitz.

Incan Sales Co., Aug. 8 (Del.), capital 1,000 shares, no par value. J. V. Pimm and A. G. Bauer, both of Philadelphia, Pa., and R. L. Spurgeon, Wilmington, Del. Manufacture, buy, sell, trade, and deal in all kinds of rubber goods.

International Latex Corp., of Rochester, June 21 (N. Y.), 250 shares, no par value. A. M. Spanell, 103 Crouch St., A. W. Dunbar, and L. Clinton, both of 31 Exchange St., all of Rochester, N. Y. Rubber and latex products.

Liberty Tire Co., of Lynn, Mass. Capital $50,000. President, S. W. Korsun; treasurer, A. N. Korsun, Marblehead, Mass.; and P. K. Ilchuk.

Lincoln Rubber Co., Inc., of Akron, May 21 (O.), 250 shares, no par value. Factory and main office, 941 Wooster Rd., Barberton. President, W. F. Kelley; vice president, C. Scheneman; secretary, N. N. King; and treasurer, B. Burgner. Manufacture rubber products.

Michigan Tire & Tube Co., Inc., July 25 (N. Y.), capital $20,000. G., H., and J. Bodofsky, all of 456 Cherry St., New York, N. Y.

Miller-Patrick Rubber Corp., Aug. 19 (N. Y.), capital 200 shares, no par value. B. S. Hiller, 319 Carpenter Ave., and L. Patrick, 317 Carpenter Ave., both of Sea Cliff, and F. Silver, 521 Fifth Ave., New York, all in N. Y. Manufacture rubber goods.

ST. JOSEPH LEAD COMPANY
250 PARK AVENUE . . . . . NEW YORK
Plant and Laboratory, Josephtown, Beaver County, Pa.

District Sales Representative
R. L. CATHCART
Oliver Bldg.
Pittsburgh, Pa.

Distributor
H. M. ROYAL, INC.
Oakland and Norman Avenues
Trenton, N. J.

Distributor
WILLIAM D. EGLESTON COMPANY
34-38 Midway Street
Boston, Mass.

Distributor
S. H. STEWART CO.
122 S. Michigan Ave.
Chicago, Ill.

Distributor
M. R. MATTESON
403 Baltimore Ave., West
Detroit, Mich.

Distributor
H. M. ROYAL, INC.
4814 Loma Vista Ave.
Los Angeles, Cal.

UNIFORMITY
HIGH CHEMICAL PURITY
FINENESS of PARTICLE SIZE
CLEANLINESS
SUPERIOR ACTIVATION
SUPERIOR REINFORCEMENT

Market Reviews

Crude Rubber

BEARISH and bullish factors sent the rubber market see-sawing up and down in the last month, and although the net result for the month is a gain, the impetus for it is generally conceded to have come from outside factors.

A surge of speculative buying lifted the market from its low levels early in the month, with traders skeptical as to the permanence of the rise. Profit taking and liquidation turned the market down again but it spurted upward when the stock market, led by cotton, scored its sensational advance on August 8. Borrowing from these markets, the rubber market was firm for a time, but in the third week of the month it again turned easier, to be followed by another speculative upturn in the fourth week.

The list of bull points indicates what basis there is for better prices. Production in a few quarters is showing a satisfactory curtailment, especially in the Dutch East Indies. London and Liverpool stocks, too, are declining week after week. Then tire production is a bright spot. Starting with June, when shipments increased heavily because of the excise tax, reports are that manufacturers have been maintaining operations at more than seasonal capacity ever since.

On the bear side are a few setbacks that check short traders. Malayan shipments, contrary to expectations, are still high. August shipments are estimated at 38,500 tons although traders expected a sizeable reduction after the big shipments in June and July. The increased production on large and small estates, totaling over 35,000 tons, is also discouraging to those who hope for a reduction in the large stocks on hand.

Consumption in the United States was low for July, with the result that stocks on hand increased slightly during the month.

The drop in the consumption rate is largely due to curtailed automobile production. After starting the summer at a good clip, manufacturers in the last 2 months have been gradually cutting output. July production of cars was 41% less than June and 49% less than July last year. The trend downward continued into August. Part of the drop is seasonal, of course, and the hope is that fall business will pick up some of the loss.

The Outside Market enjoyed fair business during the month. A great many small and medium sized manufacturers are operating on a hand-to-mouth basis, and the rise in prices at times during the month made them come into the market. Inquiries were also received from large manufacturers, but mostly at prices under the market. The tire men are credited with holding 80% of the present stock on

RUBBER BULL POINTS

1. Tapping has ceased on 419 estates in the Dutch East Indies and partially ceased on 115 more, leaving 27% of last year's area out of production.
2. Dealers' stocks in the Far East were 19,798 tons on July 31 against 23,331 on June 30 and 42,619 on July 31 last year.
3. Harbor board stocks at Singapore and Penang were 4,408 tons on July 31 against 5,340 on June 30 and 7,372 on July 31, 1931.
4. United States imports of rubber in July were 31,078 tons against 41,394 in June and 41,004 in July, last year.
5. Stocks afloat to the United States on July 31 were 37,894 tons, against 43,079 tons at the end of June and 66,373 at the close of July, 1931.
6. June shipments of pneumatic casings increased 143.5% over May and 86.1% over June, 1931. Production increased also, but less than sales.
7. Stocks of pneumatic casings in the hands of manufacturers on June 30 dropped to a new low point.
8. London and Liverpool stocks have been decreasing steadily.
9. Ceylon shipments in July were 3,121 tons against 4,212 tons in July, 1931.

RUBBER BEAR POINTS

1. Consumption of rubber in the United States for July was 28,272 tons against 39,116 tons in June and 31,937 tons in July, 1931.
2. United States stocks on hand increased slightly during July to 345,927 tons.
3. Malayan shipments in July were 40,273 tons and are expected to be about 38,500 tons in August.
4. July production of automobiles was 41% under June and 49% under July last year. For the first 7 months production was 45% less than in the same period last year.
5. R. L. Polk & Co. estimate new passenger car registrations for July at 99,000 units against 147,523 in June and 194,291 in July, 1931.
6. Production on large and small estates in the Far East was 35,356 tons for July against 30,701 tons in June.

rubber; so they are well supplied for a time. But if a good tire replacement demand manifests itself, big manufacturers soon will be in the market for rubber.

The outlook is mixed, as the factors favoring both sides of the market indicate, and it may take another month or more to clear the situation. Much depends on a general improvement.

The discovery of cumulative errors in the Singapore reports of dealers' stocks created considerable criticism in the local market. The extra statement issued early in the month showed 34,218 tons in stock, which 4 days later was reduced to 16,041 tons. This overstatement of 18,000 tons should be explained as such errors seriously discredit Singapore statistics.

Week ended July 30. Crude rubber prices this week closed 20 to 25 points higher than last week. Contributing reasons for the rise were the continuing decrease in London and Liverpool stocks, the drop in shipments from the Dutch East Indies, and the firmness of the stock market.

September contracts closed at 3.15¢ against 2.95¢ at the close of last week; October 3.22 against 2.99; December 3.34 against 3.09; and March 3.51 against 3.29.

While last week's rise in prices was welcomed by traders, doubt was expressed as to its permanence. It has been mostly due to speculative operations aided by the favorable general business conditions reported during the last 2 weeks.

It was pointed out, however, that fundamental statistics in the rubber industry have not as yet shown anything in the way of improvement that could support a sustained rise. It looks as though the tire price war will commence again; automobile consumption is not any better than it has been for the past few months; the reduction in rubber stocks in the Far East are negligible when all sources are taken into consideration; and stocks on hand are still overwhelmingly large.

This feeling of pessimism, however, may merely be a carryover from the past few months. Traders have absorbed bad news for so long that they may have lost the ability to appreciate good news. A strong factor in favor of the rise is the fact that other commodity prices have accompanied rubber prices, and optimism is cropping up in many key industries, notably steel.

The June shipments from the Netherlands East Indies were reported at 18,932 tons, compared with 19,422 in May and 24,317 in June, 1931. For the first 6 months of 1932 shipments totaled 115,118 tons, against 141,054 last year, a drop of about 26,000 tons.

Prices on the Outside Market firmed during the week in line with those on the Exchange, but business was about the same. July contracts closed at 3⅛¢ against 3¢ the previous week; August-September 3-3/16 unchanged; and October-December 3-5/16 against 3⅛.

Week ended August 6. Active speculation continued in the rubber market although profit taking was more in evidence. When the London market reopened after the English holidays on Tuesday, slight pressure sent the market down 7 to 12 points, just about erasing the gains on Monday. This loss was recovered later in the week, and final prices were from 12 to 23 points higher than they had been the week before.

August closed at 3.24¢ as compared with 3.12¢ last week; September 3.28 against 3.15; November 3.51 against 3.28; January 3.54 against 3.39; March 3.66 against 3.51.

Previous to this week the decrease in the London and Liverpool stocks had given strong support to the market abroad. Last Monday the decrease was announced at 524 tons in the face of an estimate of 600 tons, and for next Monday the estimate is for an increase of 1,000 tons.

The rise in stocks and in the other commodity markets lent the rubber market a good part of its stability since the only statistical development was the announcement of the July figures for Ceylon. Ship-

ments for that month were 3,121 tons against 3,614 tons in June and 4,212 in July, 1931. For the first 6 months Ceylon shipments were 26,351 tons against 36,776 tons last year. World production for the same period has decreased approximately 12%, but it is expected that this percentage will widen before the year-end. Consumption has shown only a slight improvement over last year.

Although prices have now risen more than 70 points above the low levels, traders are still skeptical of the advance. The opinion seems to be that the rise has been too abrupt and largely the result of speculation, and there have been rumors of a pool.

A scattered business was done in the Outside Market at better prices than last week. Buyers who were scared in by the rise in prices, thinking it might be an advantage to stock up in case of a sustained advance, accounted for most of the business.

The nearby position on ribbed smoked sheets closed at 3⅜¢ against 3-3/16¢ last week; October-December 3-9/16 against 3-5/16; and January-March 3-11/16 against 3-7/16.

Last week's automobile output dropped sharply, with the *Times'* index at 39.7 against 50.0 for the preceding week and 59.9 for the same week last year. Most of the drop was in the low-price field. Ford production was down to 14,000 units from 24,000, or 42%; De Soto output 200 units against 1,300; and Plymouth 300 compared with 1,950 the week before.

Week ended August 13. In a surge of speculative activity rubber prices followed the lead set by cotton and stocks and went into new high ground for the present movement. At one time the December contract sold at 4¢, and at the close of the week, in spite of heavy liquidation, May, June, and July contracts sold above 4¢. An idea of the volume of business done can be gained by the fact that on Monday 4,720 long tons changed hands on the Exchange, the largest business done in several years. The average for the 5 days of the week was 3,394 tons per day.

August contracts closed at 3.53¢ against 3.24¢ at the close of last week; October 3.62 against 3.34; December 3.74 against 3.47; and March 3.92 against 3.66. On the "1B Standard" contract the May position was 4.06; June 4.10; and July 4.15¢. Net changes for the week were from 26 to 29 points upward.

The fireworks started on Monday when the government crop estimate of cotton revealed a crop about a million bales under the average of private estimates. Stocks, wheat, and other commodity prices went into new high ground, with rubber following. Impetus was given to the rise in rubber by the report that 419 estates in the Dutch East Indies had stopped tapping rubber and 115 more estates had partially suspended operations, leaving a total of 27% of last year's area out of production.

Another favorable report was that Far Eastern dealers' stocks of rubber at the end of July were 19,798 tons, compared with 23,331 tons at the end of June and 42,619 tons at the end of July, 1931. Harbor board stocks at Singapore and Penang were 4,408 tons on July 31 against 5,340 tons at the end of June and 7,372 tons at the end of July last year.

These figures bolstered the market, but at the week-end prices eased off under liquidation through commission houses.

The Outside Market did a larger volume of business, with prices keeping pace with those on the Exchange. But at the week-end prices here were easier, too.

The business came from small manufacturers who have been buying hand to mouth in the last few months and who were scared into buying by the advance in prices. Traders still seemed reluctant to accept the rise as permanent because statistical conditions have not changed drastically in the last few days to justify such a rise. Predictions for the long pull, however, are uniformly to the effect that improvement must come.

The July motor vehicle production in the United States and Canada was put at 112,600 units, or 41% under June and 49% under July, 1931. For the first 7 months production was 1,024,557 units, 45% less than in the same period last year.

Prices on the outside follow: August-September was 3¼¢ against 3⅜¢ the week before; October-December 3-13/16 against 3-9/16; and January-March 4¢ against 3-11/16.

Week ended August 20. Unsettlement in the stock and other commodity markets and local selling by commission houses led to a decline of from 18 to 27 points in the rubber market in the last week. The largest losses were in the future positions under the new "1B Standard" contract.

August closed at 3.30¢ compared with 3.53¢ the week before; October 3.44 against 3.62; December 3.50 against 3.74; March 3.72 against 3.92; and May 3.79 against 4.06.

Unexpectedly large decreases in the London and Liverpool stocks both last week and this helped firm prices for a time, as did the consumption reports. Later estimates of shipments of 38,500 tons from Malaya for August as well as disappointing cables from primary centers weakened the market. But traders think that the market is now on a steadier basis after the liquidation of the past week.

July consumption of crude rubber by manufacturers in the United States was put at 28,272 long tons compared with 39,116 in June, a drop of 27.7%. But imports dropped too. They were 31,078 tons, 24.9% under those of June and 24% under those of July last year.

Stocks on hand changed slightly. They amounted to 345,927 tons on July 31 against 345,702 tons on June 30. The July figure was still 47.5% above the stocks on hand a year ago. Crude rubber afloat was 37,894 long tons against 43,079 tons afloat June 30 and 50,155 on July 31, 1931.

The rush to get under the wire before the excise tax on tires and tubes was imposed was larger than some traders expected. Shipments of pneumatic casings for June were 10,366,640, the highest on record and 143.5% higher than in May and 86.1% above those of June last year. Production of casings in June was 5,643,329, a jump of 47.7% over May, but 1% less than June last year. Casings on hand June 30 were 4,625,021 units, a record low, decreasing 50.7% under May 31, and 55.7% under June 30, 1931.

Prices in the Outside Market were shaded slightly under a limited volume of business from the smaller manufacturers. The large fellows were in the market early in the week, but would buy only at quotations under the market. The medium and small-sized manufacturers have been active because they are afraid rubber prices might advance without giving them a chance to stock up at the lowest prices.

The prices on the Outside Market were: August-September 3⅝ against 3¾; October-December 3-11/16 against 3-13/16; and January-March 3⅞ against 4.

Week ended August 27. In the first 3 days rubber prices gained every day. On Monday, under commission house buying and scarce offers, the market gained 10 to 18 points; on Tuesday the gain was from 5 to 8 points; and Wednesday 10 to 15 points.

Tuesday's rise came in spite of a report that July production on large and small estates was 35,356 tons instead of the 30,856 tons estimated earlier. The gain in stocks and commodities offset this news somewhat.

On August 24, prices responded to a rise in the London market and to an improvement in stocks and commodities here. August contracts closed at 3.64¢ against 3.50¢ the previous week; December 3.90 against 3.70; March 4.12 against 3.95; June 4.20 against 4.07.

At the close of August 26, August contracts were 3.81¢, against 3.78¢ on August

New York Outside Market—Spot Closing Rubber Prices—Cents Per Pound

	July, 1932						August, 1932																
	25	26	27	28	29	30	1	2	3	4	5	6	8	9	10	11	12	13	15	16	17	18	19	20
Ribbed Smoked Sheet	2 1/8	3	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 5/16	3 5/16	3 1/16	3 5/16	3 5/16	3 1/16	3 1/16	3 1/16
No. 1 Thin Latex Crepe	3 7/16	3 1/8	3 1/8	3 1/8	4	4	4 1/16	4	4	4 1/16	4 1/16	4 1/16	4 1/16	4 1/16	4 1/16	4 1/16	4 1/2	4 1/2	4 1/16	4 1/2	4 1/2	4 1/16	4 1/16	4 1/16
No. 1 Thick Latex Crepe	3 7/16	3 1/8	3 1/8	3 1/8	4	4	4 1/16	4	4	4 1/16	4 1/16	4 1/16	4 1/16	4 1/16	4 1/16	4 1/16	4 1/2	4 1/2	4 1/16	4 1/2	4 1/2	4 1/16	4 1/16	4 1/16
No. 1 Brown Crepe	2 1/8	2 7/16	2 1/8	2 1/8	3	3	3 1/16	3	3	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/2	3 1/2	3 1/16	3 1/2	3 1/2	3 1/16	3 1/16	3 1/16
No. 2 Brown Crepe	2 3/16	2 1/8	2 7/16	2 7/16	2 1/8	2 1/8	3	2 1/8	2 1/8	3	3	3	3 1/16	3 1/16	3 1/16	3 1/16	3 3/16	3 3/16	3 1/16	3 3/16	3 3/16	3 1/16	3 1/16	3 1/16
No. 2 Amber	2 7/16	2 1/8	3	2 1/8	3	3	3 1/16	3	3	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/2	3 1/2	3 1/16	3 1/2	3 1/2	3 1/16	3 1/16	3 1/16
No. 3 Amber	2 1/8	2 7/16	2 1/8	2 7/16	2 1/8	2 1/8	3	2 1/8	2 1/8	3	3	3	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16	3 1/16
No. 4 Amber	2 3/16	2 1/8	2 7/16	2 1/8	2 7/16	2 7/16	2 1/8	2 7/16	2 7/16	2 1/8	2 1/8	2 1/8	3 1/16	3 1/16	3 1/16	3 1/16	3 1/4	3 1/4	3 1/16	3 1/4	3 1/4	3 1/16	3 1/16	3 1/16
Rolled Brown	2 5/8	2 1/2	2 3/4	2 3/4	2 1/2	2 1/2	2 7/8	2 1/2	2 1/2	2 7/8	2 7/8	2 7/8	3 1/16	3 1/16	3 1/16	3 1/16	3 1/8	3 1/8	3 1/16	3 1/8	3 1/8	3 1/16	3 1/16	3 1/16

25; September 3.85 against 3.82; October 3.93 against 3.89; December 4.07 against 4.02.

In the Outside Market, prices gained over last week as they did on the Exchange. Inquiries were much more numerous, and small manufacturers bought.

Despite the bullish trend there was little doing in actual rubber. Only a small business was booked for forward shipment, consumers purchasing out of spot and nearby supplies. Plantation rubber rose from 3½¢ asked at the close of last week to 4-1/16¢, net 9/16¢ higher, while spot latex was up ½¢ for the week.

Interest was displayed in India Tire & Rubber Company's announcement of an increase of from 11 to 15% in tire and tube prices. The company recently restored a pay cut of 15 to 20% to its employes.

Rubber Trade Inquiries

The inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The Editor is therefore glad to have those interested communicate with him.

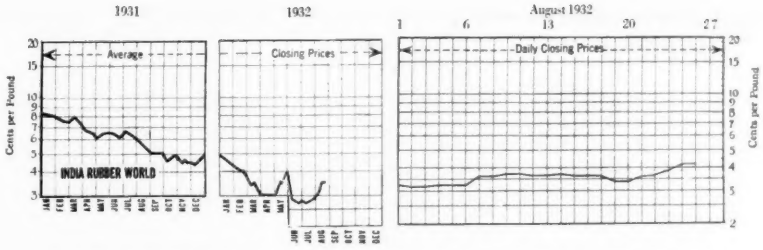
No.	Inquiry
1506	Manufacturer of a patented rubber faucet coupling bearing the initials: "I.S.R. Co."
1507	Dealers in used individual tire vulcanizers, sizes: 4.75/19, 4.50/21, 4.50/20, 30 x 5, and 32 x 6.
1508	Manufacturer of special paints for decorating rubber toys.
1509	Manufacturer of a machine for trimming overflow of automobile steering wheels.
1510	Suppliers of soapbark.
1511	Manufacturer of rubber sleeve covers.
1512	Manufacturers of hardware and department store rubber specialties.
1513	Who grinds rubber rollers?

Foreign Trade Information

For further information concerning the inquiries listed below address United States Department of Commerce, Bureau of Foreign and Domestic Commerce, Room 734, Custom House, New York, N. Y.

No.	Commodity	City and Country
†441	Balloons	Milan, Italy
†442	Bathing caps and shoes	Trieste, Italy
†456	Druggists' sundries	Montreal, Canada
†483	Toys and balloons	Tel-Aviv, Palestine
*†487	Tires	Jerusalem, Palestine
*554	Bathing caps	Fiume, Italy
†589	Scrap rubber	Hamburg, Germany
*†634	Conveyer belts	Buenos Aires, Argentina
*†646	Mechanical packings	Melbourne, Australia
†713	Hospital goods	Cairo, Egypt
†716	Masking tape	Montreal, Canada
*740	Confectioners' bags	Montreal, Canada
*†754	Druggists' sundries	Glasgow, Scotland
*†780	Bathing caps and druggists' sundries	London, England
†830	Bathing caps	Milan, Italy
*†831	Mechanical and surgical goods, toys, and balloons	Bombay, India

*Purchase. †Agency. *†Purchase and agency.



New York Outside Market—Spot Closing Prices Ribbed Smoked Sheets

Imports by Customs Districts

	June, 1932 — Rubber Latex		June, 1932 — Crude Rubber		June, 1931 — *Crude Rubber	
	Pounds	Value	Pounds	Value	Pounds	Value
Massachusetts	135,464	$10,886	2,509,442	$84,260	6,172,640	$447,413
New York	555,691	17,914	69,067,898	2,057,326	86,818,537	5,824,264
Philadelphia	.....	.....	767,200	23,014	1,908,967	138,268
Maryland	.....	.....	6,156,548	168,047	1,710,092	101,298
Georgia	.....	.....	.....	.....	430,167	26,453
Los Angeles	.....	.....	11,639,667	272,409	8,019,621	504,351
San Francisco	.....	.....	1,269,614	42,029	11,200	1,120
Oregon	.....	.....	.....	.....	38,080	2,397
Ohio	.....	.....	.....	.....	33,644	2,832
Totals	691,155	$28,800	91,410,369	$2,647,085	105,142,948	$7,048,396

*Crude rubber including latex dry rubber content.

New York Quotations

New York outside market rubber quotations in cents per pound

Plantations	Aug. 27, 1931	July 25, 1932	Aug. 26, 1932
Rubber latex...*gal.*	75	51	51
Sheet			
Ribbed, smoked, spot	5 1/16/5 3/16	2 11/16/3	4
Aug.-Sept.	5 1/16/5 3/16	3	4
Oct.-Dec.	5 1/8/5 1/4	3 1/8/3 1/16	4 1/8
Jan.-Mar.	5 1/16	3 1/16/3 1/4	4 1/4
Apr.-June	5 5/8	.....	4 3/8
CREPE			
No. 1 thin latex, spot	5 3/4	3 3/4/3 13/16	4 5/8
Aug.-Sept.	5 3/4	3 3/4/3 7/8	4 7/8/4 5/8
Oct.-Dec.	5 7/8	3 7/8/3 15/16	4 3/4
Jan.-Mar.	6 1/8	4 /4 1/16	4 7/8
Apr.-June	6 1/2	.....	5
No. 2 Amber, spot	5	2 11/16/2 7/8	3 13/16/3 7/8
Aug.-Sept.	5	2 7/8	3 13/16/3 7/8
Oct.-Dec.	5 7/8	2 7/8/2 11/16	3 11/16
Jan.-Mar.	5 1/16	3 /3 1/16	4 1/16
Apr.-June	15 1/16	.....	4 1/16
No. 3 Amber, spot	4 7/8	2 3/4/2 13/16	3 3/4
No. 1 Brown	5	2 3/4/2 13/16	3 3/4/3 13/16
No. 2 Brown	4 13/16	2 11/16/2 13/16	3 11/16/3 3/4
Brown, rolled	4 1/2	2 1/4/2 5/8	3 1/4/3 5/16
PONTIANAK			
Bandjermasin	...	5	5
Pressed block	8 1/2	7	7
Sarawak	...	5	5
PARAS			
Upriver fine	7 1/4	6 1/4	7 1/2
Upriver fine	*11	*10	*10 1/2
Upriver coarse	...	...	†3 1/2
Upriver coarse	*7 1/2	*4 3/4	*5 1/2
Islands fine	8	...	†6 1/2
Islands fine	*11 1/2	*9 3/4	*10
Acre, Bolivian, fine	8 1/4	6 3/4	7 1/2
Acre, Bolivian, fine	*12 3/4	*10 1/2	*10 1/2
Beni, Bolivian	...	6 3/4	7 1/2
Madeira, fine	8	6 1/2	7 1/4

Caucho	Aug. 27, 1931	July 25, 1932	Aug. 26, 1932
Upper ball	....	..	†3 1/2
Upper ball	*7	*4 3/4	*5 1/2
Lower ball	...	..	†3
Manicobas			
Manicoba, 30% guar.	†4	†2	†2 1/2
Mangabiera, thin sheet	†4	†2	†2 1/2
Guayule			
Duro, washed and dried	14	12	12
Ampar	15	12	13
Africans			
Rio Nuñez	...	8 1/2	†9 3/4
Black Kassai	...	8 1/4	†7 1/2
Manihot cuttings	...	6	†3
Prime Niger flake	...	12	15
Accra flake	...	12	..
Gutta Percha			
Gutta Siak	10 3/4	7	6 1/2
Gutta Soh	16 3/4	15	12
Red Macassar	1.75	1.50	1.50
Balata			
Block, Ciudad Bolivar	27	16	17
Manaos block	27	22	17
Surinam sheet	...	32	28
Amber	...	35	30

*Washed and dried crepe. Shipments from Brazil. †Nominal.

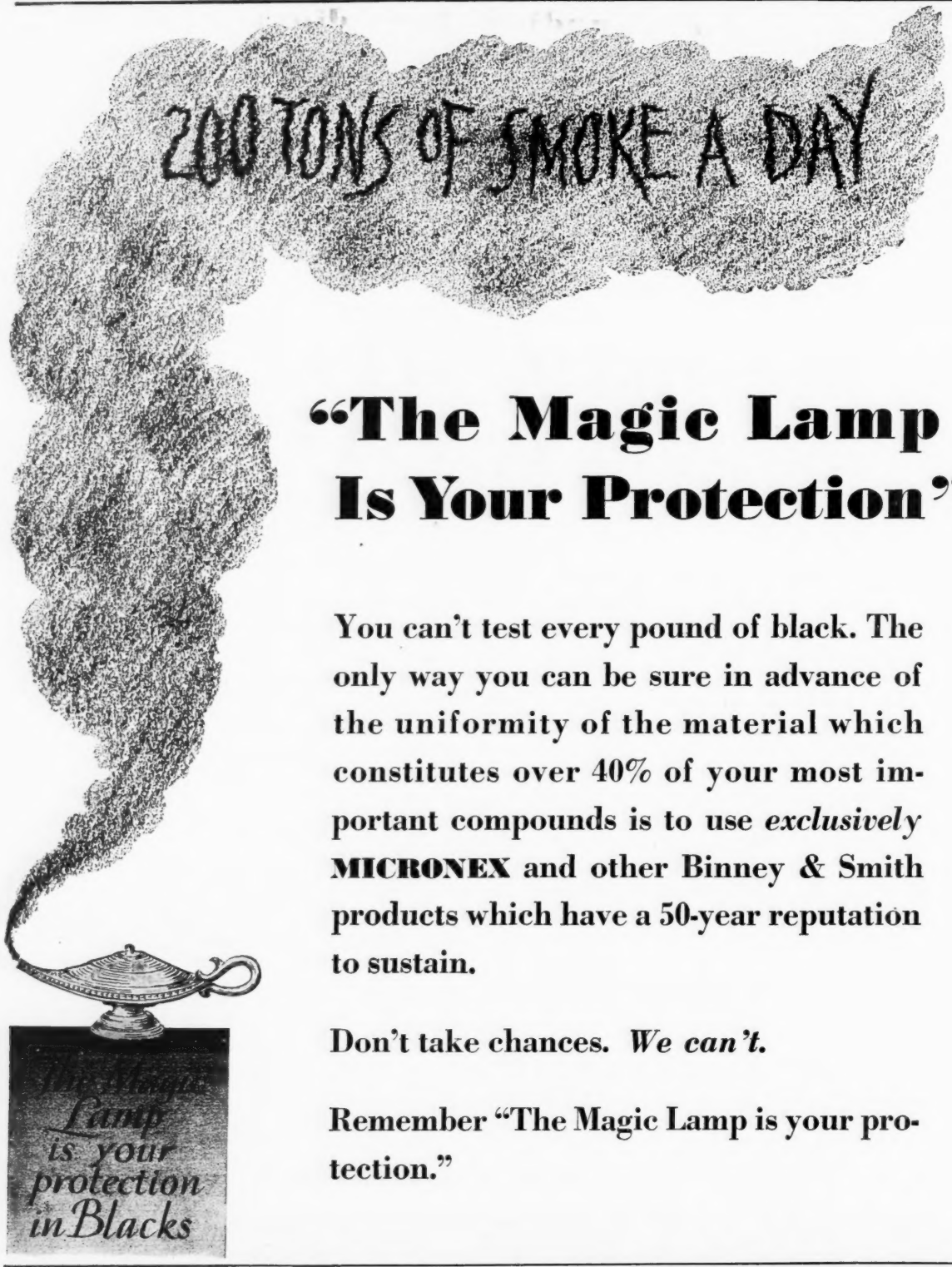
New York Outside Market (Continued)

	August, 1932 — 22	23	24	25	26	27
Ribbed Smoked Sheet	3 9/16	3 5/8	3 13/16	3 13/16	4	4 1/16
No. 1 Thin Latex Crepe	4 3/8	4 1/4	4 3/8	4 1/2	4 5/16	4 5/8
No. 1 Thick Latex Crepe	4 3/8	4 1/4	4 3/8	4 1/2	4 5/16	4 5/8
No. 1 Brown Crepe	3 7/8	3 1/2	3 5/8	3 3/4	3 13/16	3 7/8
No. 2 Brown Crepe	3 1/16	3 1/16	3 1/2	3 5/8	3 11/16	3 3/4
No. 2 Amber	3 7/8	3 1/2	3 5/8	3 3/4	3 13/16	3 7/8
No. 3 Amber	3 5/16	3 3/4	3 1/2	3 5/8	3 11/16	3 3/4
No. 4 Amber	3 7/16	3 5/16	3 3/4	3 1/2	3 5/16	3 5/8
Rolled Brown	3 1/16	3	3 1/16	3 1/16	3 1/16	3 1/16

Low and High New York Spot Prices in Cents Per Pound

Plantations	*1932 — August	1931 — August	1930 — August
Thin latex crepe	4 /4 5/8	5 1/2/6 1/4	10 1/4/10 7/8
Smoked sheet, ribbed	3 7/8/4 1/16	5 1/8/5 3/4	9 3/4/10 3/4
Paras			
Upriver fine	†5 3/4/6	7 1/8/8 5/8	13 1/4
Upper caucho ball	†2 1/2	†	†

*Figured to August 27, 1932. †Nominal.



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41 EAST 42ND STREET, NEW YORK, N. Y.

Compounding Ingredients

THE sharp decrease in tire production during August, attributed to curtailment of mail-order house buying, caused marked falling off in the demand for compounding ingredients generally. Many tire plants are closed at this time for inventory, and tire production proceeds at an estimated rate of 30% of capacity.

Research is active for the development of improved compounding ingredients. Announcement has just been made of 2 liquid materials to effect economy and improve quality. These materials are Plastogen for plasticizing rubber without breaking it down, and Bondogen for increasing the solvent action on rubber of gasoline and improve the cohesive strength of rubber cement.

Price changes on ingredients in recent weeks occurred in the market prices of 4 important materials for rubber compounding.

Carbon black of standard rubber quality declined July 13 to 2.72¢ a lb., carload lots f. o. b. Tex. and 2.82¢ a lb. carload lots f. o. b. La. This reduction of 3 points was extended only to manufacturers of rubber products.

Litharge in casks increased ½¢ a lb. to 5¾¢ owing to an advance in the price of pig lead.

Stearic acid advanced August 15 in sympathy with the rise in price of the source material.

Titanium pigment (calcium base) was reduced August 8 by ½¢ to 6-6¼¢ a lb. The barium base pigment remains unchanged at 6½-6¾¢ a lb. These prices apply to carload lots of each base pigment.

New York Quotations

August 26, 1932

Prices Not Reported Will Be Supplied on Application

Abrasives			
Pumicestone, pwd.	lb.	$0.02½	/$0.04
Rottenstone, domestic	ton	23.50	/28.00
Accelerators, Inorganic			
Lime, hydrated	ton	20.00	
Litharge, com., pwd., casks	lb.	.05¾	
Magnesia, calcined, heavy	lb.	.04½	
carbonate	lb.	.05¾ /	.06
Accelerators, Organic			
Accelerator 49	lb.	.38 /	.43
Aldehyde ammonia	lb.	.65 /	.70
Altax	lb.		
Barak	lb.		
BLE	lb.		
Butene	lb.		
Captax	lb.		
Crylene	lb.		
paste	lb.		
DBA	lb.		
Di-esterex N.	lb.		
DOTG	lb.	.42 /	.47
DPG	lb.	.33 /	.38
Ethylidine aniline	lb.	.45 /	.47½
Formaldehyde aniline	lb.	.37½ /	.40
Grasselerator 808	lb.		
833	lb.		
Heptene	lb.		
base	lb.		
Hexamethylenetetramine	lb.	.46	
Hydrone	lb.		
Lead oleate, No. 999	lb.	.10	
Witco	lb.	.10	
Lithex	lb.		
Methylene dianiline	lb.		
Monex	lb.		
Novex	lb.		
Plastone	lb.		
R & H 40	lb.		
50	lb.		
50-D	lb.		
397	lb.		
Safex	lb.		
Super-sulphur No. 1	lb.		
No. 2	lb.		
Tensilac 39	lb.	.40 /	.42½
Thermlo F	lb.		
Thiocarbanilid	lb.	.25 /	.27
Thionex	lb.		
TMTT	lb.		
Trimene	lb.		
base	lb.		
Triphenyl guanidine	lb.	.58	.60
Tuads	lb.		
Vulcanex	lb.		
ZBX	lb.		
Zimate	lb.		
Acids			
Acetic 28% (bbls.)	100 lbs.	2.65 /	2.90
glacial (carboys)	100 lbs.	9.64 /	9.89
Sulphuric, 66°	ton	15.50	
Age Resisters			
Age-Rite Gel	lb.		
powder	lb.		
resin	lb.		
white	lb.		
Albasan	lb.		
Antox	lb.		
Permalux	lb.		
VGB	lb.		
Zalba	lb.		
Antiscorch Materials			
UTB	lb.		
Antisun Materials			
Heliozone	lb.		
Sunproof	lb.		
Binders, Fibrous			
Cotton flock, dark	lb.	$0.08½	/$0.10
dyed	lb.	.50 /	.85
white	lb.	.11 /	.16
Rayon flock, white	lb.	1.40	
colored	lb.	1.75	
Colloidal Ingredients			
Catalpo	ton	35.00	/60.00
Collway sulphur (dry basis)	lb.	.25	
Colors			
BLACK			
Bone, powdered	lb.	.05½ /	.15
Drop	lb.	.05½ /	.17
Lampblack (commercial)	lb.	.06 /	.08
BLUE			
Blue toners	lb.	.80 /	3.50
Prussian	lb.	.35 /	.37
Ultramarine	lb.	.06 /	.30
BROWN			
Mapico	lb.	.14 /	.15
Sienna, Italian, raw, pwd.	lb.	.04½ /	.11
GREEN			
Chrome, light	lb.	.23 /	.25½
medium	lb.	.26 /	.27½
Chrome oxide	lb.	.19 /	.21
Green toners	lb.	.85 /	3.50
ORANGE			
Cadmium sulphide	lb.		
Orange toners	lb.	.40 /	1.60
ORCHID			
Orchid toners	lb.	1.50 /	2.00
PINK			
Pink toners	lb.	1.50 /	4.00
PURPLE			
Purple toners	lb.	.60 /	2.00
RED			
Antimony			
Crimson, R. M. P. No. 3	lb.	.48	
Sulphur free	lb.	.52	
7-A	lb.	.35	
Z-2	lb.	.20	
Iron Oxides			
Rub-er-red	lb.	.08¾	
Mapico	lb.	.08½ /	.09
Red toners	lb.	.80 /	2.00
WHITE			
Lithopone	lb.	.04½ /	.05
Albalith	lb.	.04½ /	.04¾
Cryptone No. 19	lb.	.06 /	.06¼
Cryptone CB No. 21	lb.	.06 /	.06¼
Grasselli	lb.	.04½ /	.05
Titanium oxide, pure	lb.	.18 /	.20
Titanox "B"	lb.	.06½ /	.07
"C"	lb.	.06 /	.06½
Zinc Oxide			
Black label (lead free)	lb.	.05¾	
F. P. Florence, green seal	lb.	.09¾ /	.09⅞
red seal	lb.	.08⅝ /	.08⅞
white seal (bbls.)	lb.	.10⅞	
Green label (lead free)	lb.	.05¾	
Green seal, Anaconda	lb.	.09⅝ /	.10⅛
Horsehead (lead free) brand			
Selected	lb.	.05¾ /	.06
Special	lb.	.05¾ /	.06
XX	lb.	.05¾ /	.06
green	lb.	.05¾ /	.06
red	lb.	.05¾ /	.06
Kadox, black label	lb.	.09⅛ /	.09⅞
blue label	lb.	.08⅝ /	.08⅞
red label	lb.	.07¼ /	.07½
Lehigh (leaded)	lb.	.0490 /	0.515
Red label (lead free)	lb.	.05¾	
Red seal, Anaconda	lb.	$0.08⅝ /	$0.09⅛
Standard (leaded)	lb.	.05½ /	.05¾
Sterling (leaded)	lb.	.05½ /	.05¾
Superior (leaded)	lb.	.05½ /	.05¾
U. S. P. (bbls.)	lb.	.12¾	
White seal, Anaconda	lb.	.10⅞ /	.11⅛
XX zinc sulphide (bbls.)	lb.	.13	
YELLOW			
Chrome	lb.	.16	
Mapico	lb.	.11 /	.12
Ochre, domestic	lb.	.01⅜ /	.02½
Yellow toners	lb.	2.50	
Deodorant			
Rodo	lb.		
Factice—See Rubber Substitutes			
Fillers, Inert			
Asbestine	ton	15.00	/16.00
Barytes (f.o.b. St. Louis)	ton	23.00	
Blanc fixe, dry, precip.	ton	70.00	/75.00
pulp	ton	42.50	/45.00
Kalite No. 1	ton	30.00	/55.00
No. 3	ton	40.00	/65.00
Suprex white, extra light	ton	60.00	/80.00
heavy	ton	45.00	/55.00
Whiting			
Chalk, precipitated	lb.	.03½ /	.04
Domestic	100 lbs.	1.00	
Sussex	ton		
Witco	ton	20.00	
Fillers for Pliability			
Flex	lb.		
Fumonex	lb.	.02½ /	.06
P-33	lb.		
Thermax	lb.		
Velvetex	lb.	.02 /	.05
Finishes			
Mica, amber	lb.	.04	
Starch, corn, pwd	100 lbs.	2.44 /	2.64
Talc, dusting	ton	20.00	
Pyrax A	ton		
Mineral Rubber			
Genasco (fact'y)	ton	40.00	/42.00
Gilsonite (fact'y)	ton	37.34	/39.65
Granulated M. R.	ton		
Hydrocarbon, hard	ton		
Parmr Grade 1	ton	23.00	/28.00
Grade 2	ton	23.00	/28.00
Mold Lubricants			
Sericite	lb.		
Soapbark (cut)	lb.	.06½ /	.07
Soapstone	ton	15.00	
Oils			
Castor, blown	lb.	.11¾	
Poppy seed oil	gal.	1.60	
Red oil, distilled (bbls.)	lb.	.06½ /	.07⅛
Protective Colloids			
Casein, domestic	lb.	.04¾ /	.06
Reenforcers			
Aluminum flake	ton	21.85	/24.50
Carbon Black			
Aerfloted arrow black	lb.	.02¾	
Arrow specification black	lb.	.03	
Century (works, c. l.)	lb.	.02¾	
Certified, Cabot, c. l., f. o. b. works, bags	lb.	.0272	
c. l., f. o. b. works, cases	lb.	.04¼	
l. c. l., f. o. b. works	lb.	.04¾	
Disperso (works, c. l.)	lb.	.02¾	
Dixie brand	lb.	.02¾ /	.06¼
Elastex	lb.	.03½ /	.08
Gastex (f. o. b. fact'y)	lb.	.02½ /	.06
Kosmos brand	lb.	.02¾ /	.06½
Micronex	lb.	.03 /	.05
Ordinary (compressed or uncompressed)	lb.	.02¾ /	.07

Clays			
Blue Ridge, dark	ton		
China	ton	$7.50	
Dixie	ton		
Langford	ton		
Par	ton		
Perfection	ton	8.00	/20.00
Standard	ton	7.50	
Suprex No. 1	ton	8.00	
No. 2, dark	ton	6.50	
Glue, high grade	lb.	.15	/ .22
Rubber Substitutes or Factice			
Amberex	lb.	.15	
Black	lb.	.06	/ .08
Brown	lb.	.06	/ .11
White	lb.	.08	/ .12½
Softeners			
Burgundy pitch	lb.	.05	
Degras	lb.	.02¾	/ .03½
Fluxol	ton	18.00	/80.00
Palm oil (Witco)	lb.	.08	
Petrolatum, light amber	lb.	.02½	/ .02¾
Plastogen	lb.	.08	/ .12
Rosin oil, compounded	gal.	.30	
Rubberseed, drums	lb.		
Rubtack	lb.	.10	
Tonox	lb.		
Witco Flux	gal.	.20	
Solvents			
Benzol (90% drums)	gal.	.25	
Bondogen	gal.	1.25	
Carbon bisulphide (drums)	lb.	.05½	/ .12
tetrachloride	lb.	.06¼	/ .07
Dependip	gal.		
Dip-Sol	gal.		
Dryolene, No. 9	gal.		
Petrobenzol	gal.		
Rub-Sol	gal.		
Solvent naphtha (tanks)	gal.	.26	
Stod-Sol	gal.		
Troluoil	gal.		
Turpentine, dest. distilled	gal.	.35	
Stabilizers for Cure			
Laurex, ton lots	lb.		
Stearex B	lb.	.06½	/ .10
flake	lb.	.06½	/ .10
Stearic acid, dbl. pres'd	lb.	.08	/ .12
Vulcanizing Ingredients			
Rubber sulphur	100 lbs.	1.85	/ 2.20
Sulphur chloride, drums	lb.	.03½	/ .04
Telloy	lb.		
Vandex	lb.		

(See also Colors—Antimony)

British Malaya

An official cable from Singapore to the Malayan Information Agency, Malaya House, 57 Charing Cross, London, S.W.1, England, gives the following figures for July, 1932:

Rubber Exports

Ocean Shipments from Singapore, Penang, Malacca, and Port Swettenham

	July, 1932	
To	Sheet and Crepe Rubber Tons	Latex Concentrated Latex and Revertex Tons
United Kingdom	6,645	105
United States	23,578	287
Continent of Europe	6,551	151
British possessions	578	2
Japan	2,049	3
Other countries	774	...
Totals	40,175	548

Rubber Imports

Actual Imports by Land and Sea

	July, 1932	
From	Dry Rubber Tons	Wet Rubber Tons
Sumatra	473	2,182
Dutch Borneo	388	1,190
Java and other Dutch islands	70	7
Sarawak	434	8
British Borneo	123	16
Burma	60	8
Siam	111	73
French Indo-China	143	20
Other countries	35	4
Totals	1,837	3,508

DETERIORATION INHIBITOR FOR RUBBER IS another name for antioxidant, antiager, age resister, antioxygen, etc.

Imports, Consumption, and Stocks

CONSUMPTION of crude rubber by manufacturers in the United States for July totaled 28,272 long tons as compared with 39,116 long tons for June, a decrease of 27.7%, according to The Rubber Manufacturers Association.

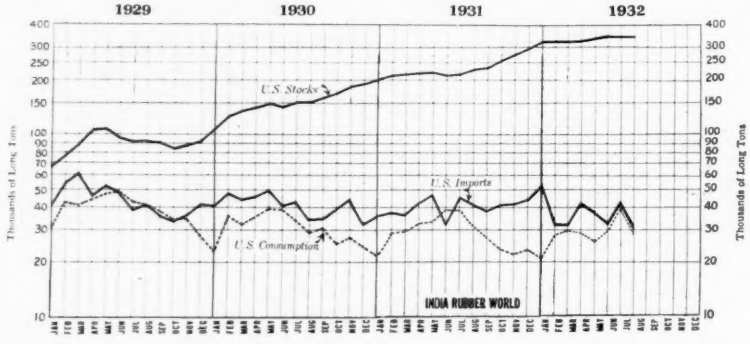
July imports of crude rubber were 31,078 long tons, a decrease of 24.9% below June and 24% below July, 1931.

Total domestic stocks of crude rubber on hand July 31 are estimated at 345,927 long tons, compared with June 30 stocks of 345,702. July stocks show practically no percentage change as compared with June of this year, but were 47.5% above the stocks of July 31, 1931.

Crude rubber afloat for the United States ports on July 31 was 37,894 long tons against 43,079 long tons afloat on June 30 and 50,155 long tons afloat on July 31, 1931.

London and Liverpool Stocks

Week Ended	Tons London	Tons Liverpool
July 30	48,833	57,366
Aug. 6	48,980	58,019
Aug. 13	47,713	57,762
Aug. 20	46,986	57,542
Aug. 27	47,052	57,448



United States Stocks, Imports, and Consumption

United States and World Statistics of Rubber Imports, Exports, Consumption, and Stocks

Twelve Months	U. S. Net Imports* Tons	U. S. Consumption Tons	U. S. Stocks on Hand† Tons	U. S. Stocks Afloat† Tons	United Kingdom Stocks†‡ Tons	Singapore and Penang, Etc., Stocks†‡ Tons	World Production (Net Exports)‡ Tons	World Consumption Estimated‡ Tons	World Stocks†‡§ Tons
1927	431,807	372,528	100,130	47,938	65,663	25,798	605,196	589,128	193,146
1928	446,421	442,227	66,166	68,764	22,691	32,905	649,674	667,027	122,828
1929	561,454	466,475	105,138	62,389	73,276	36,768	863,410	785,475	228,572
1930	488,343	375,980	200,998	56,035	118,297	45,179	821,815	684,993	366,034
1931	495,163	348,986	322,826	53,940	127,103	55,458	797,441	668,660	495,724
1932									
January	31,298	27,962	322,860	42,234	125,276	59,836	63,627	50,480	507,962
February	30,546	30,012	322,119	51,728	125,958	56,684	59,871	51,230	504,759
March	42,382	27,828	334,566	44,190	124,975	51,072	58,977	63,324	510,838
April	37,017	25,953	343,098	40,387	123,235	48,303	57,232	57,450	514,637
May	32,224	29,197	346,231	50,453	116,015	47,015	62,434	56,156	509,261
June	41,394	39,116	345,702	43,079	109,509	28,671	57,713	72,300	483,882
July	31,078	28,272	345,927	37,894	.....	.....	.....	.....	.....

*Including liquid latex, but not guayule. †Stocks on hand the last of the month or year. ‡W. H. Rickinson & Son's figures. §Stocks at the 3 main centers, U. S. A., U. K., Singapore and Penang.

U. S. Crude and Waste Rubber Imports for 1932

	Plantations	Latex	Paras	Africans	Centrals	Guayule	Manicoba and Matto Grosso	Totals 1932	Totals 1931	Balata	Miscellaneous	Waste
Jan. ....tons	30,847	271	142	38	..	..	..	31,298	37,098	53	731	50
Feb.	30,041	361	144	..	..	..	..	30,546	36,645	98	689	..
Mar.	41,753	335	240	54	..	..	..	42,382	40,338	65	754	25
Apr.	36,390	516	111	..	..	..	..	37,017	46,648	35	421	..
May	32,030	82	81	31	..	..	..	32,224	31,720	72	645	30
June	41,070	290	34	..	..	..	..	41,394	45,776	17	415	..
July	30,822	212	44	..	..	..	..	31,078	41,004	57	505	..
Total, 7 mos., 1932 ....tons	242,953	2,067	796	123	..	..	..	245,939	.....	397	4,160	105
Total, 7 mos., 1931 ....tons	273,164	2,385	3,559	120	1	..	..	.....	279,229	912	5,109	112

Compiled from The Rubber Manufacturers Association, Inc., statistics.

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Cotton and Fabrics

WHOLLY unexpected and sensational in its results was the forecast by the Department of Agriculture as to the size of the 1932 crop: 11,306,000 bales, 1,000,000 bales below the average of private estimates, 35% less than last year's crop, and 3,352,000 bales less than the average for the last 5 years. Prices jumped $5 a bale when the news was released, starting a rally which included stocks and bonds and many other commodities.

This good news, however, was a bit dampened the following week when the Census Bureau announced that the carryover of cotton on July 31 was 9,682,316 bales against 6,369,993 bales at the end of the previous season. The total supply of cotton on hand, then, at the beginning of the new season was 23,170,748 bales against 18,314,054 at the beginning of the 1931-1932 season.

The cotton cloth figures for July were favorable, showing a gain of sales over production, but the production rate was low. July consumption of cotton was only 278,656 bales against 320,783 in June. Manufacturers are striving to keep output within sales to avoid overproduction. Business in cotton cloth was reported to be better in August; and as Mr. Stone, chairman of the Farm Board, said, a pickup in textile production would do much to cut down the supply of about 10,000,000 bales of cotton estimated being held in storage and compresses.

The large supply and low consumption are offset by the low estimate for the present crop and predictions that foreign takings will improve because foreign crops are not up to par. The formation of 2 credit agencies, one by the Reconstruction Finance Corp. and the other by 20 leading banks, both designed to facilitate financing by farmers, was also credited to the constructive side of the market.

The market evidenced by the steady rise in prices during August is bullish. If business conditions continue to improve, the market undoubtedly will keep step.

Week ended July 30. Good crop weather in the early part of the week sent prices down a few points, and reports of rainy weather which revived fear of boll weevils helped the market to steady itself at the week-end in the face of profit taking.

Most of the week's rise of from 26 to 30 points, however, was due to growing confidence in business conditions. The securities market climbed steadily during the week; commodity prices in general are higher; steel makers expressed optimism; and under these conditions the cotton market rose over ¼¢. There was profit taking, of course, but it was readily absorbed.

The October position closed at 6¢ on Saturday, compared with 5.74¢ the week before; December 6.16 against 5.89; January 6.25 against 5.97; March 6.39 against 6.11; and May 6.55 against 6.25.

A private crop report issued during the week estimated conditions to be 68.5%, indicating a yield of about 12,500,000 bales. Last year's crop was over 17,000,000 bales,

COTTON BULL POINTS

1. **The Department of Agriculture estimated the 1932 crop at 11,306,000 bales, 5,790,000 bales below last year's.**
2. **Sales of cotton cloth in July were 157.1% of output; unfilled orders increased 33.4%; stocks on hand dropped 7.8%; billings were 116.9% of production.**
3. **Exports of cotton in the season closed July 31 were 8,706,890 bales against 6,757,475 last season.**
4. **The Reconstruction Finance Corp. set up 8 regional agricultural credit corporations, each with a capital of $3,000,000 to aid farmers and livestock men.**
5. **The Commodities Finance Corp. was formed with a $50,000,000 capital by 20 banks to facilitate financing of agricultural products.**
6. **July exports were 449,476 bales against 360,205 in June and 259,059 in July, 1931.**
7. **Cloth manufacturers plan to close one week in August and in September to keep output in line with demand.**
8. **The Fossick Bureau reports heaviest weevil infestation since 1923 in the Mississippi Valley and almost 100% damage in south Georgia.**

COTTON BEAR POINTS

1. **The supply of cotton in the United States at the end of July was estimated at 23,170,748 bales against 18,314,054 bales last season.**
2. **Consumption of cotton for the year ended July 31 was 4,869,103 bales against 5,262,974 last season.**
3. **Spindles operated at 51.7% of capacity during July against 57.7% for June and 86.0% for July, 1931.**
4. **July consumption of cotton was 278,656 bales against 320,783 in June and 450,884 in July, 1931.**
5. **British cotton mills face a great strike if a wage dispute is not settled.**
6. **The Farm Board is credited with liquidating over 300,000 bales of cotton since July 9.**

and the smaller crop would just about equal consumption of American cotton this year. The government agents made their surveys this week for their report to be issued August 8. Traders are anxious to know what this first report will show.

June consumption of American cotton was reported at 999,000 bales by the New York Cotton Exchange Service, against 1,021,000 bales in May, and 947,000 in June last year. Estimated consumption for the 12 months of the season is around 12,500,000 bales, with a carryover of about 13,250,000 bales.

Cotton cloth output declined to 56.7 for the July 23 week in the *Times'* index, against 59.7 for the preceding week, and 89.0 for the same week last year. Orders were said to have been more numerous, making for a stronger price trend, but mills will probably move cautiously in stepping up output to meet the larger demand to avoid accumulations.

Week ended August 6. The bulls and the bears both had their innings this week in the cotton market, with prices seesawing up and down as each side took the upper hand.

On Monday, for instance, the market rose to the highest point in 3 weeks, but reports of selling by government agencies and profit taking leveled off the rise and the market closed at Saturday's levels. Then on Tuesday the market, in sympathy with outside factors and a report here of a large carryover, sent the market downward from 13 to 18 points.

For the entire week, changes ranged from 13 to 16 points on the up side. October closed at 6.16¢ against 6.00¢ the week before; December 6.34 against 6.16; January 6.41 against 6.25; March 6.55 against 6.39; and May 6.68 against 6.55.

Part of the enthusiasm on the stock exchange was transferred to the cotton market, but the first government report, due on Monday, made traders cautious and limited the gains.

Private estimates in the past few days have ranged from 11,000,000 to 13,000,000 bales for the new crop. The average of 5 private estimates was 12,168,000 bales, and the average of 88 Exchange members was 12,292,000 bales.

A report which influenced last Monday's market was given by the New Orleans Cotton Exchange. World consumption to the end of the season on August 1, was estimated at 13,331,000 bales, a gain of 1,475,000 bales over last year, and carryover into next season was put at 13,449,000 bales against 9,130,000 last season. Exports were 8,831,000 against 6,927,000 last season.

Cotton cloth production rose last week owing to the usual fall buying. Producers meeting at Spartanburg were advised to continue their curtailment efforts to the end of the year, and the plan will become effective when 90% of the trade votes in its favor.

Week ended August 13. The cotton market took the limelight last week. When the government crop report on Monday revealed an estimate of 11,306,000 bales of cotton in the 1932 crop—about a million bales less than expected—the fireworks began.

Cotton prices on Monday soared 86-87 points higher; the stock market followed in its wake with sensational gains and broke a record established on October 10, 1930, with a turnover of 5,459,820 shares; and, finally, other commodity prices followed cotton's lead.

The market had a setback on profit taking on Tuesday, but by Thursday quotations were 8¢ and better in the May, June, and July positions. Weakness in grain and the stock market dropped cotton again on Friday, but in Saturday's short session prices moved up again. Net changes for the week were from 112 to 116 points. The upward swing carried prices up for a gross of 147 to 154 points, but profit taking reduced the gains by 35 to 38 points.

August closed at 7.20¢ compared with 6.04¢ the week before; October 7.30 against 6.16; December 7.46 against 6.34; March 7.69 against 6.55; and May 7.81 against 6.68.

The 11,306,000-bale estimate by the Department of Agriculture was 5,790,000 less than last year, about 35%. The 2 reasons given for the low forecast were the general infestation of boll weevil and the small use of fertilizer which had dwarfed the plants.

Another favorable development was the pool sponsored by Eugene Meyer aimed to assure banking credit for the purchase of cotton by mills for future use. Manufacturers, afraid that the price might go lower, are said to have very little cotton

on hand, and the plan was designed to restore confidence in the market and help mills to purchase now.

Domestic mill consumption for July was put at 252,000 bales, compared with 320,000 in June and 451,000 in July, 1931. Output is still being curtailed to follow demand.

Week ended August 20. In spite of profit taking the market in the past week gained from 22 to 25 points. Heavy rains in Texas depressed the market somewhat because it was said that this moisture would be beneficial to the late crop. Heavy rains in the East, however, particularly over Mississippi and Alabama, brought unfavorable crop announcements. Reports of deterioration and weevil damage persist and emphasize the importance of the report on the condition of the crop at the end of August.

October contracts closed at 7.55¢ on Saturday against 7.30¢ the previous week; December 7.71 against 7.46; January 7.76 against 7.54; March 7.92 against 7.69; and May 8.04 against 7.81.

Much of the benefit from the lower crop was canceled when the Census Bureau estimated that the carryover of cotton on July 31 was 9,682,000 bales, the largest supply on record for the end of a season, compared with 6,370,000 bales the year before. Consumption during the year was 4,869,103 bales; exports were 8,706,890 bales, leaving the 9,000,000-bale carryover. Last year consumption was 5,262,974 bales, and net exports were 6,767,475 bales, with the carryover of 6,370,000.

Much attention was given the proposed alliance of banks to make money available for farm loans. Twenty leading banks contributed to the capital of $50,000,000.

The announcement of its formation, made on Thursday, said: "The Commodities Finance Corp. has been organized primarily for the purpose of facilitating the financing of the purchase, carrying, and orderly marketing, for domestic consumption or export, of agricultural and other commodities."

This news caused a moderate rise on the exchange, but some disappointment was expressed because traders hoped for a more radical move.

July cloth sales were bullish, with sales 157.1% of output.

Week ended August 27. Extremely unfavorable weather reports caused cotton prices to climb higher in the first 3 days of the week. Over the week-end it was learned that weevil infestation in the Mississippi Valley is the heaviest in years and in southern Georgia it has caused almost 100% damage.

Monday's market, on this news, gained from 14 to 20 points. Profit taking caused a halt on Tuesday; yet net changes for the day were from 5 to 6 points on the up side.

The weekly weather report emphasized the unfavorable weather news, revealing heavy rains east of the Mississippi. The boll weevil flourishes in rainy weather, and private reports have reflected this fact.

At the close on August 24, every position beginning with October sold above 8¢, as a result of a 25-point gain. Prices were as follows: October was 8.23¢; December 8.41; January 8.50; March, 8.62; and May 8.76.

New York Quotations

August 26, 1932

	Cents
Drills	
38-inch 2.00-yd. ..... yd.	$0.08¼
40-inch 3.47-yd.	.047/8
50-inch 1.52-yd.	.11⅛
52-inch 1.90-yd.	.09½
52-inch 2.20-yd.	.08⅝
52-inch 1.85-yd.	.09¾
Ducks	
38-inch 2.00-yd. D. F. ..... yd.	.08½
40-inch 1.45-yd. S. F.	.11⅛
72-inch 1.05-yd. D. F.	.17⅝
72-inch 16.66-oz.	.19¼
72-inch 17.21-oz.	.19⅞
MECHANICAL	
Hose and belting ..... lb.	.18
TENNIS	
52-inch 1.35-yd ..... yd.	.12¾
Hollands	
RED SEAL	
36-in. ..... yd.	.11
40-in.	.11½
50-in.	.17½
GOLD SEAL	
40-in., No. 72 ..... yd.	.14
Tire Fabrics	
BUILDER	
17¼ oz. 60" 23/11 ply Karded peeler ..... lb.	.22
17¼ oz. 60" 10/5 ply Karded peeler ..... lb.	.19
CHAFER	
14 oz. 60" 20/8 ply Karded peeler ..... lb.	.22
12 oz. 60" 10/4 ply Karded peeler ..... lb.	.18
9¼ oz. 60" 20/4 ply Karded peeler ..... lb.	.24
9¼ oz. 60" 10/2 ply Karded peeler ..... lb.	.19
CORD FABRICS	
23/5/3 Karded peeler, 1 7/32" cotton.. lb.	.22¾
23/4/3 Karded peeler, 1 7/32" cotton.. lb.	.23¾
15/3/3 Karded peeler, 1 7/32" cotton.. lb	.20¾
13/3/3 Karded peeler, 1 7/32" cotton.. lb.	.19¾
7/2/2 Karded peeler, 1 7/32" cotton.. lb.	.18¾
23/5/3 Karded peeler, 1¼" cotton.. lb.	.28¾
23/5/3 Karded Egyptian ..... lb.	.34½
23/5/3 Combed Egyptian ..... lb.	.39½
LENO BREAKER	
8¼ oz. and 10¼ oz. 60" Karded peeler ..... lb.	.22
Osnaburgs	
40-in. 2.34-yd. ..... yd.	.06 13/16
40-in. 2.48-yd.	.06½
40-in. 3.00-yd.	.05 5/16
40-in. 10-oz. part waste	.08¾
40 in. 7-oz.	.06⅛
37-in. 2.42-yd.	.06 1/16
Raincoat Fabrics	
COTTON	
Bombazine 64 x 60 ..... yd.	.07¾
Bombazine 60 x 48	.07¼
Plaids 60 x 48	.08¾
Plaids 48 x 48	.07¾
Surface prints 60 x 60	.09¼
Surface prints 60 x 48	.09
Print cloth, 38½-in., 64 x 60	.03¼
Print cloth, 38½-in., 60 x 48	.02¾
SHEETINGS, 40-INCH	
48 x 48, 2.50-yd. ..... yd.	.05½
48 x 48, 2.85-yd.	.05
64 x 68, 3.15-yd.	.05¼
56 x 60, 3.60-yd.	.04½
44 x 48, 3.75-yd.	.04⅛
44 x 40, 4.25-yd.	.03¾
SHEETINGS, 36-INCH	
48 x 48, 5.00-yd. ..... yd.	.03⅜
44 x 40, 6.15-yd.	.02 7/8

WEEKLY AVERAGE PRICES OF MIDDLING COTTON

Week Ended	Cents per Pound
July 30	5.92
Aug. 6	6.02
Aug. 13	7.21
Aug. 20	7.53
Aug. 27	8.36

Spot cotton advanced 55 points on August 27. Middling was 9.20¢. Sales were 200 bales, delivered on contract none, receipts as of Friday 50 bales forward shipment. Total sales at 13 southern markets were 32,666 bales against 15,431 a year ago, and the average price of middling at 10 designated southern markets was 8.84¢.

Cotton Fabrics

DUCKS, DRILLS, AND OSNABURGS. During the past month the market for these goods has substantially strengthened in price in keeping with the improved demand stimulated by the report of the Government Census Bureau on the probable cotton crop of this season. The prices of fabrics are expected to advance gradually and steadily. Over the past 8 months fabric prices declined 2½ to 3¢ a pound below a parity with cotton.

Supplies in the hands of jobbers and consumers have probably not been smaller for years than they are at present. With renewal of confidence buyers will again be willing to take goods in moderate quantities for reserve stock. Such operations should serve quickly to clear the inventories that exist with the mills and ultimately establish a basis for increased mill production and a broader price spread for textiles over the price of raw cotton.

RAINCOAT FABRICS. Trade in raincoat fabrics is inactive because of the off-season dullness on the part of makers of weatherproof garments.

SHEETINGS. The market for sheetings in general has been very active during the past month.

TIRE FABRICS. The decrease in stocks of tires effected by the pre-tax sales helped the tire market to some extent, but had little influence in improving the demand for tire fabrics; the sale of which lagged with moderate sales.

London Rubber Trade Association Reorganizes

Following the decision at a recent meeting of the Rubber Trade Association of London, a new company has been formed, The London Rubber Exchange Co., Ltd., which will take over the commercial activities of the association. Harry Symington, chairman of the association, will be chairman of the company while its directors will be the same as the committee of the association. The association will not be dissolved, but will confine itself to matters of professional interest.

The new organization has been registered as a public company, but all the shares will be held by members of the association. The capital is given as £48,350, and the stated objects of the company are to provide and maintain a suitable building or rooms for a rubber exchange and/or settlement house in London for facilitating the settlement of contracts for the purchase and sale of rubber. The registered office is at 6 Mincing Lane, London, E.C.3, which is also the address of the Rubber Trade Association. *Rubber Division, Department of Commerce, Washington, D. C.*

AN OASIS in a Desert!

For the first five months of this year Pennsylvania shows a 38% increase in the sale of its superb tire line over a similar period in 1931.

In the succeeding month, June, Pennsylvania produced and sold more tires, tubes and tennis balls than in any previous single month of its 33 years as a rubber manufacturer.

This brilliant record is superimposed on a 1931 that revealed Pennsylvania making handsome net profits and very substantial sales gains.

Since the very outset of depression its employment of labor has been constant and within its ranks there is a spirit and drive that is most inspiring.

Pennsylvania's glorious position is a legacy of vision. Foreseeing and anticipating a business collapse, Pennsylvania trimmed sails, cleared decks and entered the storm fully prepared. With no extended lines, no entangling alliances, no unprofitable commitments it has had nothing to tear down or reconstruct. It has been able to strike out with preconceived sales and merchandising strategy that has been most effective. And its success is enlarging from day to day.

PENNSYLVANIA
RUBBER COMPANY OF AMERICA, INC.
(Makers of Pennsylvania Tires and Tubes, "Pressure-Packed" Tennis Balls, Bicycle Tires, etc.)
General Offices and Factories:
Jeannette, Pa. (In the Pittsburgh Industrial Area)

Regular and Special Constructions of

COTTON FABRICS

Single Filling Double Filling and

ARMY
Ducks

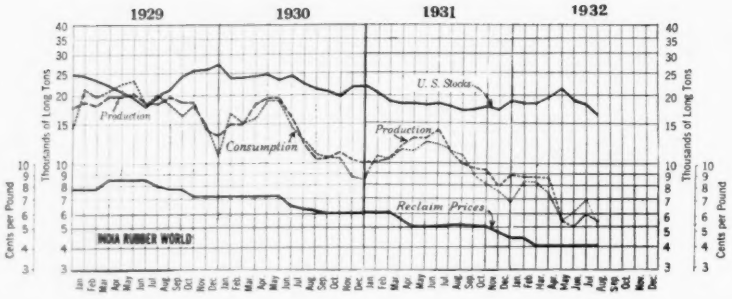
HOSE and BELTING
Ducks

Drills

Selected
Osnaburgs

Curran & Barry
320 BROADWAY
NEW YORK

Reclaimed Rubber



Production, Consumption, Stocks, and Price of Tire Reclaim

United States Reclaimed Rubber Statistics—Long Tons

Year	Production	Consumption	Consumption Per Cent to Crude	United States Stocks*	Exports
1927	189,144	178,471	47.6	24,980	8,540
1928	208,516	223,000	50.4	24,785	9,577
1929	219,057	224,253	47.9	27,464	12,721
1930	157,967	153,497	41.5	24,008	9,468
1931	132,462	125,001	35.7	19,257	6,971
1932					
January	8,753	8,440	30.2	18,712	475
February	8,731	8,332	27.6	18,659	484
March	8,613	7,420	26.7	19,726	476
April	5,555	5,561	21.4	21,525	370
May	5,024	6,070	20.8	18,889	188
June	5,923	7,031	18.0	16,870	259
July	5,+17	5,131	18.2	16,333	240

*Stocks on hand the last of the month or year.
Compiled by The Rubber Manufacturers Association, Inc.

ALTHOUGH consumption of reclaimed rubber in July dropped down to the low point of only 5,131 tons, the ratio used to crude rose slightly to 18.2% because of a sharp drop in the consumption of crude. Stocks on hand also dropped below those of June and totaled 16,333 tons at the end of July.

It is a good sign that the ratio of reclaim used has not decreased in July, but actual consumption figures tell a better story of the condition of the reclaim market. The 5,131 tons consumed is the lowest this year and for some time previous. Estimates are that August business will not be much better because these 2 summer months are usually the dullest of the year.

A good part of the drop in consumption is due to the sharp curtailment in automobile production, which has been more marked in August than in July. Naturally, if automobiles are not sold, accessories like covers and mats and tubing are not sold either.

The tire men on the other hand, probably are responsible for sustaining the ratio at the level of the previous month. While the feverish activity that characterized the month of June has died down, tire manufacturers are still doing a good business and are utilizing the usual percentage of reclaimed rubber in their finished product. Crude rubber prices have improved somewhat in the last month, and as these prices advance, manufacturers will probably revert again to reclaim and to the more satisfactory finished products that can be produced with a mixture of reclaim with crude for most purposes.

Insulated wire and molded hose manufacturers have experienced a slow month, as have the accessory dealers.

The general improvement in business felt in the last few weeks has not as yet made itself felt in the reclaim market. The advance in the price of crude is cheering, but the gain is still too small to make any noticeable difference in the sales of reclaim.

Reclaim prices did not change on any of the following grades:

New York Quotations

August 26, 1932

	Spec. Grav.	Cents per Lb.
High Tensile		
Super-reclaim, black	1.20	5 /5¼
red	1.20	4¾/5
Auto Tire		
Black	1.21	3¾/4
Black selected tires	1.18	4 /4¼
Dark gray	1.35	5 /5¼
White	1.40	6 /6½
Shoe		
Unwashed	1.60	4¾/5
Washed	1.50	5½/5¾
Tube		
No. 1	1.00	6½
No. 2	1.10	4½/4¾
Truck Tire		
Truck tire, heavy gravity	1.55	5 /5¼
Truck tire, light gravity	1.40	5¼/5½
Miscellaneous		
Mechanical blends	1.60	3 /3¼

Rubber Scrap

AUGUST business in rubber scrap was about as expected—dull and featureless. The market undertone, however, was much more confident even though prices had changed very little. The feeling exists that an upward tendency will manifest itself within the next few weeks. Inquiries were more numerous, and while sales were not increased by any large amount, scrap dealers believe that the general improvement noted in other businesses has carried the scrap market along.

Tires and tubes were higher by small amounts, reflecting the more active tone that this grade has enjoyed for the last 2 or 3 months. A slump is expected during the summer, but the drop in tire business has been less than seasonal in the opinion of many observers. After Labor Day dealers are confident that scrap rubber will show a good increase.

BOOTS AND SHOES. Only a fractional change in price was registered in the black variety of boots and shoes—from 75¢ to $1 per 100 lb. last month to 75¢ to 90¢ this month—the other grades were unchanged. In the Midwest scrap prices on shoes were firm, but this was offset by a duller tone in the East.

INNER TUBES. Price changes were slight, but demand was notably better. The market was firm on all grades, and export business was particularly good.

TIRES. Mixed beads showed a gain of 25¢, but the other grades remained unchanged. As with tubes, prices of tires show a slightly higher tendency as a result of an improved demand. Tires and tubes have done better in the last few months than most grades of scrap, and this condition is expected to be maintained.

MECHANICALS. For the third month quotations on mechanicals did not change. The market is dull and featureless.

HARD RUBBER. In an easier market, prices were shaded almost a whole point.

CONSUMERS' BUYING PRICES

Carload Lots Delivered Eastern Mills

August 26, 1932

	Prices
Boots and Shoes	
Boots and shoes, black..100 lb.	$0.75/$0.90
Colored .....100 lb.	.625 /.75
Untrimmed arctics.....100 lb.	.50
Inner Tubes	
No. 1, floating .....lb.	.02¾/.03
No. 2, compound .....lb.	.01¼/.01⅜
Red .....lb.	.01½/.01⅝
Mixed tubes .....lb.	.01¼
Tires	
Pneumatic Standard	
Mixed auto tires with beads .....ton	7.25/ 7.50
Beadless .....ton	10.50/11.00
Auto tire carcass .....ton	8.00/ 9.00
Black auto peelings ...ton	19.00/19.50
Solid	
Clean mixed truck.....ton	23.00/24.00
Light gravity .....ton	28.00/29.00
Mechanicals	
Mixed black scrap .....lb.	.00⅝/.00¾
Hose, air brake .....ton	7.50/ 8.00
Garden, rubber covered.lb.	.00¾/.00⅞
Steam and water, soft...lb.	.00⅜/.00½
No. 1 red .....lb.	.01⅜/.01⅝
No. 2 red .....lb.	.01 /.01⅛
White druggists' sundries..lb.	.01¼/.01½
Mechanical .....lb.	.00¾/.00⅞
Hard Rubber	
No. 1 hard rubber .....lb.	.06⅝/.06¾

CLASSIFIED ADVERTISEMENTS

SITUATIONS WANTED

ASSISTANT SUPERINTENDENT. PRACTICAL MAN WITH 12 years' experience in rubberizing all kinds of fabrics, both single and double textures, raincoat materials and suede cloth. Complete knowledge of calender, mill room, spreading, curing, and compounding. Thoroughly understands the working of all equipment. Address Box No. 12,091, care of INDIA RUBBER WORLD.

CHEMIST, AGE FORTY-TWO, SINGLE, 14 YEARS' EXPERIENCE. laboratory and factory work on tires, insulation, and reclaiming. Wide variety of non-rubber chemical experience. Address Box No. 12,092, care of INDIA RUBBER WORLD.

YOUNG MAN, TWENTY-SEVEN, ASSISTANT SUPERINTENDENT **or junior executive, six years' experience production, factory development and research with large corporations, tires, tubes, sundries, packings, brake linings. Knowledge compounding. Moderate salary. Fine record and references.** Address Box No. 12,093, care of INDIA RUBBER WORLD.

RUBBER CHEMIST: SPECIAL EXPERIENCE WITH accelerators, age resisters, cements, rubber paints, and plastics. Thorough knowledge of production methods. Married; age 30. Desires position with responsibility. Address Box No. 12,095, care of INDIA RUBBER WORLD.

CONNECTION DESIRED BY MAN, AGE 37. GENERAL ADMINistrative ability, 17 years' industrial experience, 12 years in sales and production of mechanical rubber. Good correspondent, qualified in merchandising and personal contacts. Address Box No. 12,098, care of INDIA RUBBER WORLD.

CALENDER AND MILL ROOM FOREMAN, WITH THOROUGH practical experience, efficient manager, executive ability, at present employed, desires to make change. Address Box No. 13,001, care of INDIA RUBBER WORLD.

FACTORY SUPERINTENDENT, AGE 41, WITH 22 YEARS OF experience in proofing, calendering, auto cloth, raincoats, hospital sheetings, shoes, toy balloons, etc., would like to become connected with A-1 concern. Has up-to-date formulae and can handle the works from start to finish. Address Box No. 13,002, care of INDIA RUBBER WORLD.

SITUATIONS WANTED—Continued

CHEMIST, AGE THIRTY-SIX, MARRIED, UNIVERSITY GRADuate, desires permanent position. Good technical training, 11 years' experience in alkalis, acids, heavy chemicals, organic accelerators and analyses, rubber and rubber reclaiming manufacture. Available immediately. Moderate salary. Address Box No. 13,003, care of INDIA RUBBER WORLD.

POSITION WANTED AS SUPERVISOR. THOROUGHLY PRACtical in the manufacture of calendered clothing, auto top, leatherette, suede cloth, double napped sheeting, hospital sheeting, rubberizing, double and single, backing cloth, pure gum sheeting, rubber substitutes and colors. Practical compounder. Understand all cures, varnishes and machinery. Address Box No. 13,004, care of INDIA RUBBER WORLD.

SITUATION OPEN

GUTTA-PERCHA CALENDER MAN, THOROUGHLY EXPERIenced and capable of assuming charge of department. Write, giving full details of experience, copies of references, and minimum starting salary. Address Box No. 12,099, care of INDIA RUBBER WORLD.

BUSINESS OPPORTUNITIES

WE BUY AND SELL RAW AND SCRAP RUBBER. CORRESPONDence solicited. Chautard & Co., 15-16 America-square, London, E. C. 3, England.

FIRST-CLASS SPONGE RUBBER TECHNICIAN, WITH NEWEST German processes (literally acquisitions), which vulcanizes several sponge rubber loaves in single-jacketed pans. What American concern would be interested in securing this process? Correspondence in German requested to Box No. 12,094, care of INDIA RUBBER WORLD.

ARE YOU IN POSITION TO MANUFACTURE GUM BABY PANTS, household aprons, sanitary items, shower curtains, etc.? If so, our organization, having years of experience in the distribution of these commodities to jobbers, department stores, syndicates, and premium users, is now in a position to take on entire output of a progressive manufacturer. Styling and merchandising cooperation in building lines. Sales about $350,000 annually. Address Box No. 12,097, care of INDIA RUBBER WORLD.

SMALL FACTORY WANTED: RUBBER FACTORY SUITABLE for soft rubber manufacturing, preferably New York vicinity. Must be very low priced. Send full particulars. Address Box No. 13,000, care of INDIA RUBBER WORLD.

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Formerly with U. S. Bureau of Standards

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THE BARR RUBBER PRODUCTS COMPANY

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INTERNATIONAL PULP CO.

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GUARANTEED EQUIPMENT — PROMPT SHIPMENT

FACTORY OUTFITTERS FROM A BOLT TO A COMPLETE PLANT

Engineering and Erecting Service

We carry the largest diversification of rubber equipment, consisting of:

Mills	Vulcanizers	Refiners	Accumulators	Cutters	Drives
Calenders	Washers	Cement Churns	Motors	Banbury Mixers	Driers
Presses	Crackers	Pumps	Air Compressors	Tire and Tube equipment	Slitters
Tubers					

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AKRON, OHIO
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Great Britain Representative
FRANCIS PAISLEY
76 Maryon Road
London, S. E. 7, England

(Advertisements continued on page 77)

United States Statistics

Imports of Crude and Manufactured Rubber

	May, 1932		Five Months Ended May, 1932	
UNMANUFACTURED—*Free*	Pounds	Value	Pounds	Value
Crude rubber	76,568,682	$2,798,914	399,756,806	$16,309,813
Liquid latex	314,941	27,449	4,149,828	211,226
Jelutong or pontianak	1,268,692	68,028	5,677,592	337,802
Balata	94,457	9,863	799,954	80,197
Gutta percha	64,558	3,512	224,131	15,738
Siak, scrap, and reclaimed	434,754	3,164	2,282,359	23,219
Totals	78,746,084	$2,910,930	412,890,670	$16,977,995
Chicle, crude—*Free*	956,983	$387,146	3,359,513	$1,461,316
MANUFACTURED—*Dutiable*				
Tires—*number*	769	$5,375	8,996	$84,162
Other rubber manufactures	.....	52,810	.....	258,506
Totals	.....	$58,185	.....	$342,668

Exports of Foreign Merchandise

RUBBER AND MANUFACTURES				
Crude rubber	3,372,166	$144,603	21,215,435	$996,778
Balata	1,618	515	110,823	24,322
Guayule	.....	.....	2,300	281
Gutta percha, rubber substitutes, and scrap	.....	.....	16,171	1,975
Rubber manufactures	.....	1,505	.....	4,102
Totals	.....	$146,623	.....	$1,027,458

Exports of Domestic Merchandise

RUBBER AND MANUFACTURES				
Reclaimed	420,918	$15,518	4,467,335	$189,151
Scrap and old	4,217,408	68,872	25,176,955	410,405
Rubberized automobile cloth, *sq. yd.*	32,275	12,756	214,245	81,100
Other rubberized piece goods and hospital sheeting, *sq. yd.*	65,369	19,931	306,596	97,672
Footwear				
Boots—*pairs*	9,727	20,085	59,460	126,996
Shoes—*pairs*	13,133	7,814	92,540	49,715
Canvas shoes with rubber soles—*pairs*	41,352	18,607	144,173	77,835
Soles—*doz. pairs*	2,470	5,408	11,696	24,394
Heels—*doz. pairs*	35,037	19,605	164,528	98,733
Water bottles and fountain syringes—*number*	14,511	5,583	76,802	27,424
Gloves—*doz. pairs*	4,833	10,313	23,637	52,704
Other druggists' sundries	.....	21,782	.....	124,378
Balloons—*gross*	22,144	19,891	138,802	115,847
Toys and balls	.....	3,645	.....	14,744
Bathing caps—*doz.*	4,580	7,699	28,704	52,954
Bands	28,337	8,165	145,405	43,608
Erasers	21,700	14,074	115,414	70,774
Hard rubber goods				
Electrical goods	53,566	5,182	395,701	42,389
Other goods	.....	9,268	.....	46,409
Tires				
Trucks and bus casings, *number*	19,281	316,243	91,369	1,469,404
Other automobile casings, *number*	62,112	390,587	325,483	2,204,215
Tubes, auto—*number*	55,503	58,005	266,115	287,311
Other casings and tubes, *number*	5,434	13,009	14,735	34,351
Solid tires for automobiles and motor trucks—*number*	599	16,292	3,905	100,732
Other solid tires	112,686	15,282	679,388	86,654
Tires sundries and repair materials	.....	44,808	.....	233,112
Rubber and friction tape	65,430	17,637	317,662	75,866
Belting	144,283	59,301	706,864	295,221
Hose	234,161	60,699	1,179,765	310,784
Packing	84,158	33,787	430,934	161,323
Thread	108,717	65,325	521,609	327,290
Other rubber manufactures	.....	88,656	.....	417,232
Totals	.....	$1,473,829	.....	$7,750,727

London Stocks, June, 1932

LONDON	Landed Tons	Delivered Tons	Stocks, June 30: 1932 Tons	1931 Tons	1930 Tons
Plantation	3,699	8,896	†50,965	83,000	80,144
Other grades	.....	2	†44	34	54
LIVERPOOL					
Plantation	*2,126	*3,552	*58,500	*53,975	*27,332
Total tons, London and Liverpool	5,825	12,450	†109,509	137,009	107,530

* Official returns from the recognized public warehouses.
† Corrected by P. L. A.

World Rubber Shipments—Net Exports

	Long Tons—1932				
British Malaya	Mar.	Apr.	May	June	July
Gross exports	39,903	36,670	40,297	36,566	40,723
Imports	6,658	4,682	5,677	5,665	5,346
Net	33,245	31,988	34,620	30,901	35,377
Ceylon	3,462	3,210	3,824	3,444	3,125
India and Burma	284	365	304	359	.....
Sarawak	501	459	595	481	442
British No. Borneo	460	420	420	420	420
Siam	217	130	118	166	184
Java and Madura	4,946	6,722	6,552	5,610	.....
Sumatra E. Coast	6,863	6,090	6,551	7,516	.....
Other N. E. Indies	6,299	4,935	6,012	5,507	.....
French Indo-China	774	962	964	*1,231	.....
Amazon Valley	715	487	416	394	232
Other America	.....	10	.....	.....	.....
Guayule	.....	.....	.....	.....	.....
Africa	77	*75	*75	*75	*75
Totals	57,843	55,853	60,451	56,104	.....

*Estimate.
Compiled by Rubber Division, Department of Commerce, Washington, D. C.

United States Footwear Imports

RUBBER SOLED SHOES WITH FABRIC UPPERS	Czechoslovakia		Japan		All Other		Total	
1932	Pairs	Dollars	Pairs	Dollars	Pairs	Dollars	Pairs	Dollars
Jan.	53,455	9,183	26,496	3,859	50	19	80,001	13,061
Feb.	139,109	18,821	37,023	3,462	800	222	176,932	22,505
Mar.	131,400	18,844	124,511	12,088	.....	.....	255,911	30,932
Apr.	110,240	30,494	177,283	17,941	2,609	609	290,132	49,044
May	46,440	9,779	472,586	56,915	.....	.....	519,026	66,694
June	21,100	4,307	331,678	34,996	.....	.....	352,778	39,303
July	3,250	493	256,228	34,361	.....	.....	259,478	34,854
WATERPROOF RUBBER FOOTWEAR								
1932								
Jan.	.....	.....	.....	.....	3	7	3	7
Feb.	.....	.....	1,912	567	.....	.....	1,912	567
Mar.	1,600	462	2,861	895	123	85	4,584	1,442
Apr.	.....	.....	1,699	790	50	20	1,749	810
May	30	21	3,222	795	45	32	3,297	848
June	60	28	8,420	1,626	30	79	8,510	1,733
July	.....	.....	1,849	410	37	115	1,886	525

Rubber Division Statistics.

Plantation Rubber Crop Returns by Months

Summary of 615 Producing Companies

	Br. N. Borneo (26 Companies)		Ceylon (102 Companies)		India and Burma (21 Companies)		Malaya (338 Companies)		—Netherlands East Indies— Java (60 Companies)		Sumatra (60 Companies)		Miscellaneous (8 Companies)		Total (615 Companies)	
1932	Long Tons	Index	Long Tons	Index	Long Tons	Index	Long Tons	Index	Long Tons	Index	Long Tons	Index	Long Tons	Index	Long Tons	Index
January	352	72.0	1,378	67.5	208	37.0	14,409	115.9	2,791	106.3	4,712	116.9	212	117.1	24,062	107.6
February	336	68.7	738	36.2	82	14.6	11,854	95.3	2,793	106.4	3,894	96.6	120	66.3	19,817	88.6
March	365	74.6	1,187	58.1	152	27.0	11,395	91.6	3,071	116.9	4,210	104.4	143	79.0	20,523	91.8
April	320	65.4	1,208	59.2	150	26.7	11,983	96.4	2,769	105.4	4,054	100.5	163	90.1	20,647	92.3
May	315	64.4	900	44.1	104	18.5	12,718	102.3	2,544	96.9	4,308	106.8	162	89.5	21,051	94.1
June	339	69.3	1,078	52.8	56	10.0	12,341	99.3	2,321	88.4	4,271	105.9	157	86.7	20,563	92.0
Six months ended June,																
1932	2,027	....	6,489	...	752	....	74,700	...	16,289	....	25,449	...	957	....	126,663	...
1931	2,406	....	7,906	...	2,626	....	69,851	...	18,172	....	24,242	...	1,160	....	126,363	...

NOTE. Index figures throughout are based on the monthly average for 1929=100. Issued July 23, 1932, by the Commercial Research Department, The Rubber Growers' Association, Inc., London, England.

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Tire Production Statistics

	Pneumatic Casings—All Types			Solid and Cushion Tires		
	Inventory	Production	Total Shipments	Inventory	Production	Total Shipments
1929	9,470,368	54,980,672	55,515,884	122,200	407,347	436,027
1930	7,202,750	40,772,378	42,913,108	75,871	204,340	250,635
1931	6,219,776	38,992,220	40,048,552	38,815	136,261	167,555
1932						
Jan.	6,329,417	2,769,988	2,602,469	37,327	8,522	9,488
Feb.	7,337,796	3,096,976	2,042,289	37,242	9,754	9,541
Mar.	7,902,258	2,936,872	2,363,232	36,811	8,796	9,205
Apr.	7,876,656	2,813,489	2,958,104	35,816	7,980	8,436
May	7,502,953	3,056,050	3,406,493	35,179	8,026	8,405
June	3,700,017	4,514,663	8,293,312	22,988	11,170	22,474

	Inner Tubes—All Types			Cotton and Rubber Consumption Casings, Tubes, Solid and Cushion Tires		Consumption of Motor Gasoline (100%)
	Inventory	Production	Total Shipments	Cotton Fabric Pounds	Crude Rubber Pounds	Gallons
1929	10,245,365	55,062,886	56,473,303	208,824,653	598,994,708	14,748,552,000
1930	7,999,477	41,936,029	43,952,139	158,812,462	476,755,707	16,200,894,000
1931	6,337,570	38,666,376	40,017,175	151,143,715	456,615,428	16,941,750,000
1932						
Jan.	6,175,055	2,718,508	2,803,369	12,156,282	36,850,171	1,112,370,000
Feb.	7,007,567	3,056,988	2,182,405	12,518,243	39,472,356	1,071,840,000
Mar.	7,558,177	2,801,602	2,148,899	11,292,363	36,202,474	1,236,942,000
Apr.	7,552,674	2,579,768	2,708,186	11,083,556	35,416,482	1,270,080,000
May	7,130,625	2,727,462	3,093,593	12,044,956	37,681,119	1,326,738,000
June	3,943,246	4,222,816	7,394,118	17,480,486	57,358,548	1,627,920,000

Rubber Manufacturers Association, Inc., figures representing 80% of the industry since January, 1929, with the exception of gasoline consumption.

World Rubber Absorption —Net Imports

	Long Tons—1932		
Consumption	Apr.	May	June
United States	26,038	29,292	39,244
United Kingdom	8,568	6,107	8,362
Net Imports			
Australia	1,549	2,048	1,421
Austria	62	154	180
Belgium	847	617	.....
Canada	1,600	1,416	2,834
Czechoslovakia	1,258	350	.....
Denmark	68	64	74
Finland	36	154	51
France	2,956	2,277	3,666
Germany	3,737	3,447	3,405
Italy	1,083	1,033	.....
Japan	3,684	3,917	2,834
Netherlands	348	286	127
Norway	90	98	93
Russia	764	3,743	.....
Spain	417	272	196
Sweden	280	391	360
Switzerland	49	26	45
Others	*800	*800	*800
Totals	54,234	56,492	.....
Minus United States (Cons.)	26,038	29,292	39,244
Total foreign	28,196	27,200	.....

*Estimate to complete table.
Compiled by Rubber Division, Department of Commerce, Washington, D. C.

Rubber Goods Production Statistics

	1932	1931						1932				
Tires and Tubes	June	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May
Pneumatic casings													
Production ..... thousands	....	4,538	3,941	3,125	2,538	2,379	2,001	2,115	2,770	3,097	2,937	2,813	3,056
Shipments, total ..... thousands	....	4,458	4,370	3,968	3,145	2,281	2,310	2,225	2,602	2,042	2,363	2,958	3,406
Domestic ..... thousands	....	4,320	4,244	3,845	3,034	2,185	2,223	2,171	2,545	1,973	2,281	2,886	3,325
Stocks, end of month ..... thousands	....	8,358	7,936	7,117	6,527	6,640	6,335	6,220	6,329	7,338	7,902	7,877	7,503
Solid and cushion tires													
Production ..... thousands	....	12	13	12	10	11	9	10	9	10	9	8	8
Shipments, total ..... thousands	....	15	16	16	13	14	10	11	9	10	9	8	8
Domestic ..... thousands	....	14	15	15	12	13	10	10	9	9	9	8	8
Stocks, end of month ..... thousands	....	57	55	51	46	43	42	39	37	37	37	36	35
Inner tubes													
Production ..... thousands	....	4,286	3,964	3,548	2,759	2,462	1,955	2,078	2,719	3,057	2,802	2,580	2,727
Shipments, total ..... thousands	....	4,318	4,665	4,240	3,320	2,250	2,076	2,213	2,803	2,182	2,149	2,708	3,094
Domestic ..... thousands	....	4,228	4,569	4,158	3,247	2,187	2,022	2,172	2,761	2,135	2,094	2,658	3,035
Stocks, end of month ..... thousands	....	8,403	7,672	7,019	6,476	6,657	6,496	6,338	6,175	7,008	7,008	7,553	7,131
Raw material consumed													
Fabrics ..... thous. of lbs.	....	17,085	15,140	11,745	9,585	9,263	8,361	7,981	12,156	12,518	11,292	11,084	12,045
Miscellaneous Products													
Rubber bands, shipments ..... thous. of lbs.	....	209	246	195	201	225	197	231	206	208	223	202	187
Rubber clothing, calendered													
Orders, net ..... no. coats and sundries	10,433	21,161	17,932	21,580	23,966	20,925	14,341	13,654	20,720	12,388	13,970	7,303	12,503
Production ..... no. coats and sundries	15,333	15,419	14,431	27,080	22,728	19,773	23,255	16,221	10,130	20,405	17,649	9,711	12,886
Rubber-proofed fabrics, production, total thous. of yds.	....	3,212	3,337	3,787	4,692	4,112	2,529	2,074	2,184	2,448	2,462	2,092	1,748
Auto fabrics ..... thous. of yds.	....	701	531	596	528	445	394	380	339	233	312	202	197
Raincoat fabrics ..... thous. of yds.	744	1,355	1,843	2,226	2,988	2,476	1,267	931	853	883	754	701	556
Rubber flooring, shipments ..... thous. of sq. ft.	....	576	577	595	595	550	462	587	358	376	422	546	399
Rubber and canvas footwear													
Production, total ..... thous. of pairs	4,429	3,921	2,407	3,382	3,934	4,363	4,217	4,469	3,557	3,777	3,787	4,104	4,518
Tennis ..... thous. of pairs	2,898	1,999	836	1,021	1,012	1,231	1,443	2,078	2,496	3,226	3,187	3,446	3,485
Waterproof ..... thous. of pairs	1,531	1,922	1,570	2,361	2,922	3,131	2,773	2,391	1,061	552	600	657	1,033
Shipments, total ..... thous. of pairs	4,345	4,094	3,272	4,245	5,706	5,104	3,720	4,208	3,990	4,454	4,998	5,073	5,049
Tennis ..... thous. of pairs	3,839	2,757	1,645	1,252	1,335	633	475	734	2,374	3,411	4,264	4,374	4,603
Waterproof ..... thous. of pairs	506	1,337	1,627	2,993	4,371	4,471	3,245	3,474	1,616	1,043	735	698	446
Shipments, domestic, total ..... thous. of pairs	4,285	3,886	3,030	4,065	5,448	4,907	3,632	4,054	3,962	4,416	4,943	5,010	4,966
Tennis ..... thous. of pairs	3,786	2,657	1,520	1,223	1,263	589	446	616	2,353	3,378	4,216	4,333	4,530
Waterproof ..... thous. of pairs	499	1,229	1,510	2,842	4,185	4,318	3,186	3,438	1,610	1,038	727	677	436
Stocks, total, end of month ..... thous. of pairs	17,962	23,789	22,935	22,070	20,615	19,880	20,367	20,628	20,237	19,551	19,347	18,381	17,879
Tennis ..... thous. of pairs	5,222	6,766	5,957	5,704	5,473	6,076	7,044	8,387	8,510	8,264	8,191	7,267	6,163
Waterproof ..... thous. of pairs	12,741	17,024	16,978	16,366	15,141	13,804	13,323	12,241	11,726	11,287	11,156	11,115	11,716
Rubber heels													
Production ..... thous. of pairs	....	17,093	15,361	16,293	15,827	14,567	11,455	14,138	12,316	14,787	16,368	11,737	10,259
Shipments													
Export ..... thous. of pairs	....	630	540	514	501	617	591	474	290	259	305	280	275
Repair trade ..... thous. of pairs	....	4,946	4,058	5,355	6,994	5,924	4,537	4,622	3,431	4,575	3,785	2,656	3,651
Shoe manufacturers ..... thous. of pairs	....	10,522	11,177	11,653	9,724	7,484	6,610	8,198	8,704	8,748	9,424	6,938	6,345
Stocks, end of month ..... thous. of pairs	....	27,898	27,006	25,832	23,952	24,652	25,213	24,405	24,515	25,807	27,933	28,340	28,782
Rubber soles													
Production ..... thous. of pairs	....	3,177	2,864	2,933	2,880	2,610	2,840	3,639	3,411	3,461	3,953	2,292	2,488
Shipments													
Export ..... thous. of pairs	....	59	67	67	90	45	29	25	8	3	2	1	4
Repair trade ..... thous. of pairs	....	225	196	234	290	370	308	267	264	285	252	252	151
Shoe manufacturers ..... thous. of pairs	....	2,899	2,569	2,790	2,604	2,273	2,579	3,196	2,954	2,925	3,320	2,087	2,549
Stocks, end of month ..... thous. of pairs	....	2,461	2,475	2,395	2,264	2,153	2,180	2,018	2,085	2,428	2,691	2,759	2,434
Mechanical rubber goods, shipments													
Total ..... thous. of dollars	....	3,879	3,706	3,356	3,015	2,678	2,300	2,381	2,463	2,446	2,638	2,613	2,542
Belting ..... thous. of dollars	....	798	914	802	788	601	483	474	483	483	491	430	420
Hose ..... thous. of dollars	....	1,650	1,436	1,161	1,041	972	856	919	903	966	1,174	1,251	1,131
Other ..... thous. of dollars	....	1,431	1,356	1,393	1,186	1,105	961	988	1,077	997	973	932	991

Source: *Survey of Current Business*, Bureau of Foreign and Domestic Commerce, Washington, D. C.

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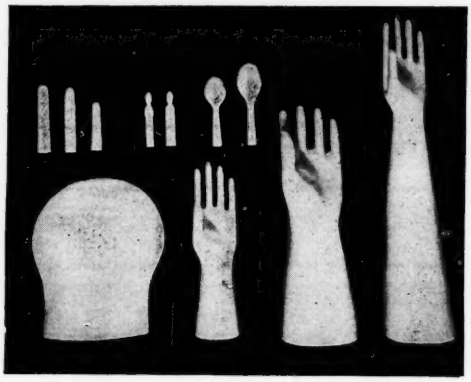

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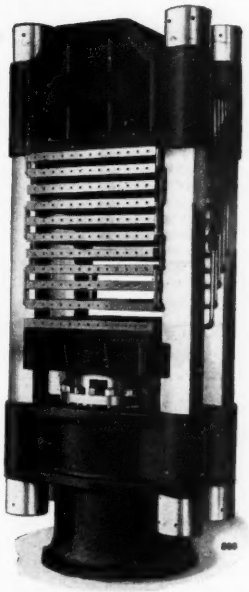

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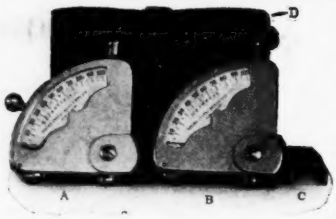

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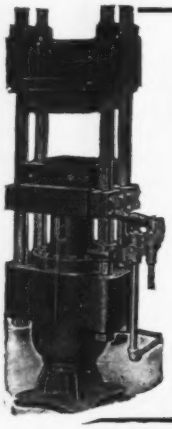

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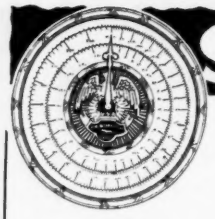

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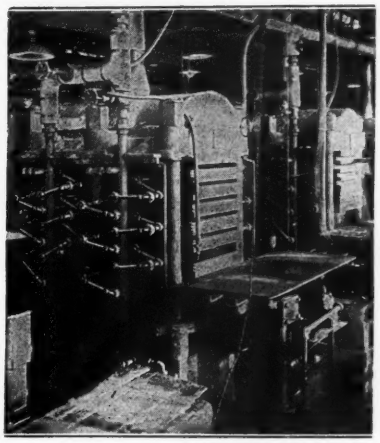

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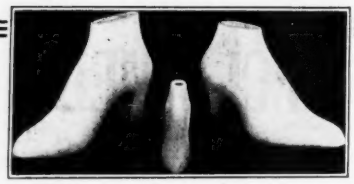

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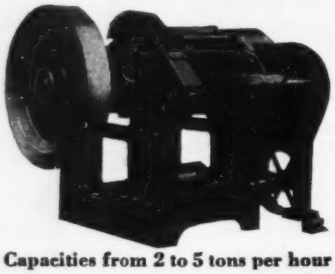

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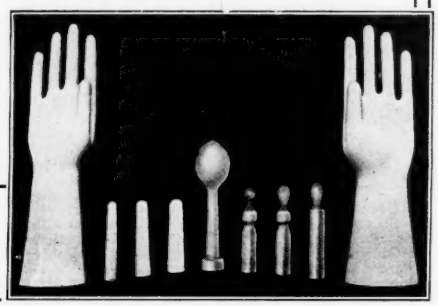

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